United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Purdue University
Agricultural Experiment
Station and Indiana
Department of Natural
Resources, State Soil
Conservation Board and
Division of Soil
Conservation

Soil Survey of Boone County, Indiana

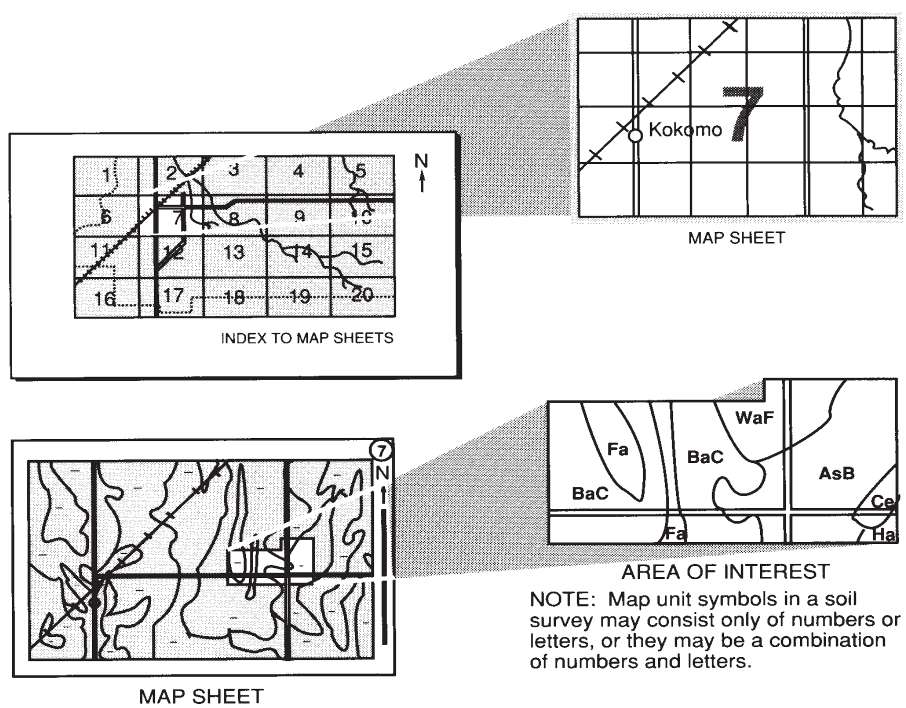
How To Use This Soil Survey

This publication consists of a manuscript and a set of soil maps. The information provided can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described. The map unit symbols and names also appear as bookmarks, which link directly to the appropriate page in the publication.

The **Contents** shows which table has data on a specific land use for each soil map unit. Also see the **Contents** for other sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture, Natural Resources Conservation Service (formerly the Soil Conservation Service); the Agricultural Experiment Stations; and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2002. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the county in 2002. This survey was made cooperatively by the Natural Resources Conservation Service, the Purdue University Agricultural Experiment Station, and the Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation. This soil survey is part of the technical assistance provided to Boone County Soil and Water Conservation District. Financial assistance was made available by the Boone County Soil and Water Conservation District and the Boone County Commissioners.

Cover: A grassy area of Miami silt loam, 6 to 12 percent slopes, eroded.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

Contents

Issued 2004

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Jane Hardisty
State Conservationist
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Soil Survey of
Boone County, Indiana

By Mike Wigginton, Natural Resources Conservation Service

Fieldwork by Mike Wigginton, Scot Haley, Jerry Shively, and Norm Stephens, Natural Resources Conservation Service

Original fieldwork by Karl H. Langlois, Jr., and Ralph H. Sturm, Soil Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with Purdue University Agricultural Experiment Station and Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation

BOONE COUNTY is northwest of Indianapolis, in the central part of Indiana (fig. 1). It has an area of about 270,957 acres, 423 square miles (USDA, 1987). The county extends about 18 miles from north to south and 24 miles from east to west. Lebanon is the county seat.

Farming is the main enterprise in the county. Cash grain and livestock are the main farm products. Much of the county has poor natural drainage and requires extensive systems of artificial drainage. Industry in Lebanon and in Indianapolis, in Marion County, provides employment for a large number of people who reside in Boone County. New housing is being developed extensively in rural areas of the county, especially around Zionsville and Lebanon. Boone County recorded a population of 46,107 during the 2000 census. Center and Eagle Townships combined accounted for 67.3 percent of the population, according to the 2000 census (USDC, 2000). Population growth in Boone County is focused primarily along the Boone-Marion County line and along Interstate Highway 65 and U.S. Highway 421.

Part of this survey gives information on nonfarm uses of soils. The areas around cities and towns have been annexed, and land use is changing. Some areas lend themselves to urban development with few limitations, while other areas have so many limitations that nonfarm uses are questionable.

This soil survey updates and refines the soil survey of Boone County published in 1975 (Langlois, 1975). It

Figure 1.—Location of Boone County in Indiana.

provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the Survey Area

This section gives general information about the physical and cultural features of the county. It describes history and development; physiography; relief and drainage; water supply; industries, transportation facilities, and markets; and climate.

History and Development

The area now known as Boone County was originally the home of the Eel River Tribe of the Miami Indians (fig. 2). The land was acquired by treaty and purchase in 1828. Boone County was organized by an act of the legislature during the 14th General Assembly for the session of December 1829 to January 1830. On January 29, 1830, the Indiana General Assembly approved measures creating Boone County. The county was named in honor of Colonel Daniel Boone of Kentucky (BCHSAF, 1984). At the time of its organization, it was a densely wooded wilderness with a total population of less than 500. In 1830, the population was 621 (Thompson, 1886). Jamestown served as the first county seat. In 1832, the county seat was moved to its current, more central location at Lebanon.

Physiography

Boone County is located entirely on the Tipton Till Plain. This plain is the largest physiographic region in Indiana. It covers approximately 11,900 square miles, or nearly one-third of the State. The plain generally is a slightly modified ground moraine. It is a level and nearly featureless plain marked only by numerous low and inconspicuous morainic ridges (Malott, 1922). There is a significant topographic ridge trending southwest through the center of Boone County. This ridge marks the division between the Wabash River watershed to the west and the White River watershed to the east. The end moraines generally trend to the

Figure 2.—Historic site in Boone County.

northwest and thus run perpendicular to the watershed divide.

Relief and Drainage

Slope in Boone County ranges from level to very steep. The relief is formed by a dendritic stream pattern that is entrenched into the till plain. The deepest entrenchments are nearest the streams. The stream terraces are nearly level, except for the steep breaks between the terraces and bottomlands.

The drainage system that formed in Boone County was dominantly influenced by the Wisconsinan Glaciation. Early settlers and their descendents straightened the streams, dug ditches, and installed drainage tiles to better utilize the poorly drained soils in the county. Big Raccoon Creek, Browns Wonder Creek, Brush Creek, Deer Creek, Dixon Creek, the Main Edlin Ditch, Goldsberry Creek, Grassy Branch, Little Sugar Creek, Mud Creek, Prairie Creek, Sprung Creek, Sugar Creek, Walnut Fork Sugar Creek, West Fork Big Walnut Creek, and Wolf Creek flow west and southwest into the Wabash River. Eagle Creek, Fenley Creek, Fishback Creek, Jackson Run, Little Eagle Creek, Mounts Run, and White Lick Creek flow southeast into the White River.

Water Supply

Water for cities, rural areas, and areas of expanding industry and housing is obtained primarily from municipal and private wells. The depth to and quantity of water depend on the thickness and composition of the till. Most of the water in the county comes from gravel and sand strata within the till. The till is relatively thick over bedrock. In some areas the wells extend into limestone bedrock (Fenelon and others, 1994).

Industries, Transportation Facilities, and Markets

Lebanon has more than 100 companies, which make up the county's widely diversified industrial base. Some of the smaller companies produce component parts or provide services to the larger industries. Lebanon is situated primarily on the poorly drained Cyclone and Treaty soils and the somewhat poorly drained Crosby and Fincastle soils.

Boone County is served by seven State highways as well as U.S. Highway 421 and Interstate Highways 65 and 74. There are more than 800 miles of county roads. Lebanon is located along Interstate Highway 65 between Indianapolis, Indiana, and Chicago, Illinois. The Conrail Railroad, which operates from Indianapolis, Indiana, to Chicago, Illinois, also serves Lebanon. Indianapolis International Airport is about 25 miles from Lebanon. Boone County Airport and Terry Airport serve the needs of private aircraft. There are a number of private airfields within the county.

Grain markets are mainly local elevators in the county. Grain is shipped by truck or railroad from these elevators to larger terminals.

Climate

Prepared by the National Water and Climate Center, Natural Resources Conservation Service, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Whitestown, Indiana, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 28.3 degrees F and the average daily minimum temperature is 19.6 degrees. The lowest temperature on record, which occurred at Whitestown on January 19, 1994, is -27 degrees. In summer, the average temperature is 72.6 degrees and the average daily maximum temperature is 84.1 degrees. The highest temperature, which occurred at Whitestown on July 14, 1936, is 112 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 41.03 inches. Of this, 23.25 inches, or about 57 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 7.92 inches at Whitestown on June 28, 1957. Thunderstorms occur on about 43 days each year, and most occur between May and August.

The average seasonal snowfall is 26.0 inches. The greatest snow depth at any one time during the period of record was 20 inches on January 27, 1978. On an average, 31 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 15.0 inches on December 20, 1973.

The average relative humidity in midafternoon is about 61 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time possible in summer and 43

percent in winter. The prevailing wind is usually from the southwest but is from the northwest from January to March. Average windspeed is highest, between 11 and 12 miles per hour, from January to April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the county. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the county occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the county. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the county and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the county and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the county, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the county, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are

the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Miami silt loam, 2 to 6 percent slopes, eroded, is a phase of the Miami series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes and undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Williamstown-Crosby silt loams, 2 to 4 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, sand and gravel, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

CbaA—Camden silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and till plains
Position on landform: Summits

Map Unit Composition

- 85 percent well drained Camden soil
- 10 percent moderately well drained Oxyaquic Hapludalfs and similar soils on summits on outwash plains and till plains
- 5 percent somewhat poorly drained Starks and similar soils on footslopes on till plains and outwash plains

Interpretive Groups

Land capability classification: Camden—1
Prime farmland status: Camden—prime farmland in all areas

Properties and Qualities of the Camden Soil

Parent material: Loess over loamy outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

CudA—Crosby silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits and footslopes

Map Unit Composition

- 93 percent somewhat poorly drained Crosby soil
- 5 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 2 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Crosby—2w
Prime farmland status: Crosby—prime farmland where drained

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

CxdA—Cyclone silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions, flats, and swales on till plains
Position on landform: Toeslopes and summits

Map Unit Composition

- 83 percent poorly drained Cyclone soil
- 15 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 2 percent somewhat poorly drained Fincastle and similar soils on summits on till plains

Interpretive Groups

Land capability classification: Cyclone—2w
Prime farmland status: Cyclone—prime farmland where drained

Properties and Qualities of the Cyclone Soil

Parent material: Loess or other silty material over till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 6.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

EdeAW—Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains

Map Unit Composition

- 47 percent moderately well drained Eel soil
- 40 percent moderately well drained Beckville soil
- 10 percent somewhat poorly drained Shoals and similar soils in long, narrow channels and other areas on flood plains
- 3 percent very poorly drained Sloan and similar soils in backswamps and meander scars on flood plains

Interpretive Groups

Land capability classification: Eel and Beckville—2w
Prime farmland status: Eel and Beckville—prime farmland in all areas

Properties and Qualities of the Eel Soil

Parent material: Fine-loamy alluvium
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Depth and months of highest apparent seasonal high water table: 1.5 feet, January, February, March, and December
Flooding: Occasional, most likely in January, February, March, April, May, June, November, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Beckville Soil

Parent material: Coarse-loamy alluvium
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Low
Depth and months of highest apparent seasonal high water table: 1.5 feet, January, February, March, and December
Flooding: Occasional, most likely in January, February,

March, April, May, June, November, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

FdbA—Fincastle silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains (fig. 3)
Position on landform: Footslopes and summits

Map Unit Composition

- 84 percent somewhat poorly drained Fincastle soil
- 10 percent poorly drained Cyclone and similar soils on the toeslopes of depressions and swales on till plains
- 6 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Fincastle—2w
Prime farmland status: Fincastle—prime farmland where drained

Properties and Qualities of the Fincastle Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Very slow to moderate
Depth to restrictive feature (dense material): 40 to 60 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate

Figure 3.—Sod farm in an area of Fincastle silt loam, 0 to 2 percent slopes.

Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

FdhA—Fincastle-Crosby silt loams, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes and summits

Map Unit Composition

- 55 percent somewhat poorly drained Fincastle soil
- 30 percent somewhat poorly drained Crosby soil
- 10 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 5 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Fincastle and Crosby—2w
Prime farmland status: Fincastle and Crosby—prime farmland where drained

Properties and Qualities of the Fincastle Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Very slow to moderate
Depth to restrictive feature (dense material): 40 to 60 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

FexB2—Fox loam, 2 to 6 percent slopes, eroded

Setting

Landform: Terraces and till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 80 percent well drained Fox soil
- 12 percent well drained Martinsville and similar soils on backslopes and shoulders on terraces and till plains
- 8 percent well drained Fox, till substratum, and similar soils on backslopes and shoulders on terraces and till plains

Interpretive Groups

Land capability classification: Fox—2e
Prime farmland status: Fox—prime farmland in all areas

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over sandy and gravelly outwash
Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

FexC2—Fox loam, 6 to 12 percent slopes, eroded

Setting

Landform: Terraces and till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 80 percent well drained Fox soil
- 12 percent well drained Martinsville and similar soils on backslopes and shoulders on terraces and till plains
- 8 percent well drained Fox, till substratum, and similar soils on backslopes and shoulders on terraces and till plains

Interpretive Groups

Land capability classification: Fox—3e
Prime farmland status: Fox—not prime farmland

Properties and Qualities of the Fox Soil

Parent material: Loamy outwash over sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 20 to 40 inches
Available water capacity: About 6.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MamA—Mahalasville silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions, swales, and flats in glacial drainage channels and on outwash plains
Position on landform: Toeslopes and summits

Map Unit Composition

- 67 percent poorly drained Mahalasville soil
- 15 percent poorly drained Pella and similar soils on the toeslopes of depressions on outwash plains
- 15 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales and the summits of flats in glacial drainage channels and on outwash plains
- 2 percent somewhat poorly drained Starks and similar soils on summits on outwash plains
- 1 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales and the summits of flats in glacial drainage channels and on outwash plains

Interpretive Groups

Land capability classification: Mahalasville—2w
Prime farmland status: Mahalasville—prime farmland where drained

Properties and Qualities of the Mahalasville Soil

Parent material: Loess or other silty material over loamy outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December

Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

MaoA—Mahalaland silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions, swales, and flats in glacial drainage channels and on outwash plains
Position on landform: Summits and toeslopes

Map Unit Composition

- 94 percent poorly drained Mahalaland soil
- 6 percent well drained Waupecan and similar soils on summits on outwash plains

Interpretive Groups

Land capability classification: Mahalaland—2w
Prime farmland status: Mahalaland—prime farmland where drained

Properties and Qualities of the Mahalaland Soil

Parent material: Loess or other silty material over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderately rapid to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 60 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

MjkAH—Medway and Beckville soils, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Map Unit Composition

- 48 percent moderately well drained Medway soil
- 40 percent moderately well drained Beckville soil
- 10 percent somewhat poorly drained Shoals and similar soils in long, narrow channels on flood plains
- 2 percent very poorly drained Sloan and similar soils in backswamps and meander scars on flood plains

Interpretive Groups

Land capability classification: Medway and Beckville—2w
Prime farmland status: Medway and Beckville—prime farmland where protected from flooding or not frequently flooded during the growing season

Properties and Qualities of the Medway Soil

Parent material: Fine-loamy alluvium
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 1.5 feet, January, February, March, and December
Flooding: Frequent, most likely in January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Properties and Qualities of the Beckville Soil

Parent material: Coarse-loamy alluvium
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Low
Depth and months of highest apparent seasonal high water table: 1.5 feet, January, February, March, and December
Flooding: Frequent, most likely in January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

MmoB3—Miami clay loam, 2 to 6 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 55 percent moderately well drained, severely eroded Miami soil
- 20 percent moderately well drained, eroded Miami and similar soils on backslopes and shoulders on till plains
- 13 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 10 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 2 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Miami—3e
Prime farmland status: Miami—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 5.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.0 to 1.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MmoC3—Miami clay loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 56 percent moderately well drained, severely eroded Miami soil
- 20 percent moderately well drained, eroded Miami and similar soils on backslopes and shoulders on till plains
- 12 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 10 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 2 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Miami—4e
Prime farmland status: Miami—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Till
Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 5.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.0 to 1.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MmoD3—Miami clay loam, 12 to 18 percent slopes, severely eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 67 percent moderately well drained, severely eroded Miami soil
- 20 percent moderately well drained, eroded Miami and similar soils on backslopes and shoulders on till plains
- 10 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 3 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Miami—6e
Prime farmland status: Miami—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 5.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.0 to 1.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MnpB2—Miami silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 72 percent moderately well drained Miami soil
- 13 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains
- 8 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 5 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 2 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Miami—2e
Prime farmland status: Miami—prime farmland in all areas

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

MnpC2—Miami silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 85 percent moderately well drained Miami soil
- 10 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 3 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains
- 2 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Miami—3e
Prime farmland status: Miami—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

MnpD2—Miami silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 85 percent moderately well drained Miami soil
- 10 percent moderately well drained Rainsville and similar soils on backslopes and shoulders on till plains
- 5 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Miami—4e
Prime farmland status: Miami—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric

Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

ObxA—Ockley silt loam, 0 to 2 percent slopes

Setting

Landform: Terraces
Position on landform: Summits

Map Unit Composition

- 81 percent well drained Ockley soil
- 15 percent well drained Ockley, till substratum, and similar soils on summits on terraces
- 3 percent somewhat poorly drained Sleeth and similar soils on footslopes on terraces
- 1 percent poorly drained Westland and similar soils on the toeslopes of depressions and swales on terraces

Interpretive Groups

Land capability classification: Ockley—1
Prime farmland status: Ockley—prime farmland in all areas

Properties and Qualities of the Ockley Soil

Parent material: Thin layer of loess over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 72 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

ObxB2—Ockley silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Terraces
Position on landform: Backslopes and shoulders

Map Unit Composition

- 79 percent well drained Ockley soil
- 14 percent well drained Ockley, till substratum, and similar soils on backslopes and shoulders on terraces
- 4 percent well drained, severely eroded Ockley and similar soils on backslopes and shoulders on terraces
- 2 percent poorly drained Westland and similar soils on the toeslopes of depressions and swales on terraces
- 1 percent somewhat poorly drained Sleeth and similar soils on footslopes on terraces

Interpretive Groups

Land capability classification: Ockley—2e
Prime farmland status: Ockley—prime farmland in all areas

Properties and Qualities of the Ockley Soil

Parent material: Thin layer of loess over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 72 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Slight

Ppu—Pits, sand and gravel

Setting

Landform: Gravel pits, sand pits (fig. 4)

Map Unit Composition

- 80 percent Pits, sand and gravel
- 10 percent Udorthents, loamy
- 10 percent water

Interpretive Groups

Land capability classification: Pits, sand and gravel—none assigned
Prime farmland status: Pits, sand and gravel—not prime farmland

Properties and Qualities of the Pits

This map unit is in areas where the surface soil has been removed and sand and gravel have been extracted for construction material. These areas consist mostly of the actual pits, but they include stockpiles of stripped soil material.

Hydric soil status: Unranked

RqpG—Rodman-Rock outcrop complex, 35 to 70 percent slopes

Setting

Landform: Terraces
Position on landform: Backslopes

Map Unit Composition

- 50 percent excessively drained Rodman soil
- 40 percent Rock outcrop
- 10 percent well drained Ockley and similar soils on backslopes on terraces

Interpretive Groups

Land capability classification: Rodman—7e; Rock outcrop—none assigned
Prime farmland status: Rodman and Rock outcrop—not prime farmland

Figure 4.—Mining of sand and gravel in an area of Pits, sand and gravel.

Properties and Qualities of the Rodman Soil

Parent material: Gravelly and loamy outwash over gravelly and sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Moderately rapid to very rapid
Permeability below a depth of 40 inches: Very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 10 to 20 inches
Available water capacity: About 3.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 6.0 percent
Shrink-swell potential: Low
Hydric soil status: Not hydric
Potential for frost action: Low
Corrosivity: Low for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Properties and Qualities of Rock Outcrop

Depth to restrictive feature (lithic bedrock): 0 inches
Hydric soil status: Not rated
Surface runoff class: Very high

RtuAH—Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Map Unit Composition

- 50 percent well drained Rossburg soil
- 40 percent well drained Landes soil
- 5 percent moderately well drained Medway and similar soils in long, narrow channels on flood plains
- 5 percent very poorly drained Sloan and similar soils in backswamps and meander scars on flood plains

Interpretive Groups

Land capability classification: Rossburg—2w; Landes—3w
Prime farmland status: Rossburg and Landes—prime farmland where protected from flooding or not frequently flooded during the growing season

Properties and Qualities of the Rossburg Soil

Parent material: Fine-loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.5 percent
Shrink-swell potential: Low
Depth to seasonal high water table: More than 6.0 feet all year
Flooding: Frequent, most likely in January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Low for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Landes Soil

Parent material: Coarse-loamy alluvium
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderately rapid or rapid
Permeability below a depth of 40 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Low
Depth to seasonal high water table: More than 6.0 feet all year
Flooding: Frequent, most likely in January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Low for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Moderately high

SigE2—Senachwine silt loam, 18 to 25 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

- 73 percent well drained Senachwine soil
- 15 percent moderately well drained Miami and similar soils on backslopes on till plains
- 10 percent moderately well drained Rainsville and similar soils on backslopes on till plains
- 2 percent well drained, severely eroded Senachwine and similar soils on backslopes on till plains

Interpretive Groups

Land capability classification: Senachwine—6e
Prime farmland status: Senachwine—not prime farmland

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 7.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Low for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

SldAH—Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Channels and flood plains (fig. 5)

Map Unit Composition

- 68 percent somewhat poorly drained Shoals soil
- 12 percent moderately well drained Medway and similar soils in long, narrow channels and other areas on flood plains
- 10 percent moderately well drained Beckville and similar soils on flood plains
- 10 percent very poorly drained Sloan and similar soils in backswamps and meander scars on flood plains

Interpretive Groups

Land capability classification: Shoals—2w
Prime farmland status: Shoals—prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Properties and Qualities of the Shoals Soil

Parent material: Fine-loamy alluvium
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Flooding: Frequent, most likely in January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SldAW—Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Channels and flood plains

Map Unit Composition

- 68 percent somewhat poorly drained Shoals soil
- 12 percent moderately well drained Medway and similar soils in long, narrow channels and other areas on flood plains
- 10 percent moderately well drained Beckville and similar soils on flood plains
- 10 percent very poorly drained Sloan and similar soils in backswamps and meander scars on flood plains

Interpretive Groups

Land capability classification: Shoals—2w
Prime farmland status: Shoals—prime farmland where drained

Figure 5.—Flooding in an area of Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration.

Properties and Qualities of the Shoals Soil

Parent material: Fine-loamy alluvium
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Flooding: Occasional, most likely in January, February, March, April, May, June, November, and December
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SngA—Sleeth silt loam, 0 to 2 percent slopes

Setting

Landform: Terraces
Position on landform: Summits and footslopes

Map Unit Composition

- 87 percent somewhat poorly drained Sleeth soil
- 10 percent somewhat poorly drained Sleeth, till substratum, and similar soils on summits and footslopes on terraces
- 3 percent poorly drained Westland and similar soils on the toeslopes of depressions and swales on terraces

Interpretive Groups

Land capability classification: Sleeth—2w
Prime farmland status: Sleeth—prime farmland where drained

Properties and Qualities of the Sleeth Soil

Parent material: Thin layer of loess or other silty material over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 60 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SnlAP—Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration

Setting

Landform: Depressions on till plains
Position on landform: Toeslopes

Map Unit Composition

- 90 percent poorly drained Southwest soil
- 10 percent poorly drained Treaty and similar soils on the toeslopes of depressions on till plains

Interpretive Groups

Land capability classification: Southwest—3w
Prime farmland status: Southwest—not prime farmland

Properties and Qualities of the Southwest Soil

Parent material: Fine-silty alluvium over glaciolacustrine deposits
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and March
Ponding: Frequent, most likely in January, February, March, April, May, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SocAH—Sloan silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Backswamps and meander scars on flood plains

Map Unit Composition

- 94 percent very poorly drained Sloan soil
- 3 percent somewhat poorly drained Shoals and similar soils in long, narrow channels and other areas on flood plains
- 2 percent moderately well drained Medway and similar soils in long, narrow channels and other areas on flood plains
- 1 percent moderately well drained Beckville and similar soils on flood plains

Interpretive Groups

Land capability classification: Sloan—3w
Prime farmland status: Sloan—prime farmland where drained and either protected from flooding or not frequently flooded during the growing season

Properties and Qualities of the Sloan Soil

Parent material: Fine-loamy alluvium
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, April, November, and December
Ponding: Frequent, most likely in January, February, March, and December
Flooding: Frequent, most likely in January, February, March, and April
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

SocAW—Sloan silty clay loam, 0 to 1 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Backswamps and meander scars on flood plains

Map Unit Composition

- 94 percent very poorly drained Sloan soil
- 3 percent somewhat poorly drained Shoals and similar soils in long, narrow channels and other areas on flood plains
- 2 percent moderately well drained Medway and similar soils in long, narrow channels and other areas on flood plains
- 1 percent moderately well drained Beckville and similar soils on flood plains

Interpretive Groups

Land capability classification: Sloan—3w
Prime farmland status: Sloan—prime farmland where drained

Properties and Qualities of the Sloan Soil

Parent material: Fine-loamy alluvium
Drainage class: Very poorly drained
Permeability to a depth of 40 inches: Moderately slow or moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, March, April, November, and December
Ponding: Frequent, most likely in January, February, March, and December
Flooding: Occasional, most likely in January, February, March, April, May, June, November, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

SteA—Starks silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes and summits

Map Unit Composition

- 85 percent somewhat poorly drained Starks soil
- 10 percent somewhat poorly drained Fincastle and similar soils on footslopes and summits on loess-mantled outwash plains
- 5 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales on outwash plains

Interpretive Groups

Land capability classification: Starks—2w
Prime farmland status: Starks—prime farmland where drained

Properties and Qualities of the Starks Soil

Parent material: Loess over loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

StjA—Starks-Crosby silt loams, 0 to 2 percent slopes

Setting

Landform: Outwash plains and till plains
Position on landform: Summits and footslopes

Map Unit Composition

- 55 percent somewhat poorly drained Starks soil
- 35 percent somewhat poorly drained Crosby soil
- 5 percent poorly drained Cyclone and similar soils on the toeslopes of depressions and swales on outwash plains and till plains
- 5 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales on outwash plains and till plains

Interpretive Groups

Land capability classification: Starks and Crosby—2w
Prime farmland status: Starks and Crosby—prime farmland where drained

Properties and Qualities of the Starks Soil

Parent material: Loess over loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

SvqG—Strawn loam, 25 to 70 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

- 90 percent well drained Strawn soil
- 5 percent excessively drained Rodman and similar soils on backslopes on till plains
- 5 percent somewhat poorly drained Shoals and similar soils on narrow flood plains

Interpretive Groups

Land capability classification: Strawn—7e
Prime farmland status: Strawn—not prime farmland

Properties and Qualities of the Strawn Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

SvzG—Strawn-Rock outcrop complex, 35 to 70 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes

Map Unit Composition

- 55 percent well drained Strawn soil
- 35 percent Rock outcrop
- 10 percent excessively drained Rodman and similar soils on backslopes on till plains

Interpretive Groups

Land capability classification: Strawn—7e; Rock outcrop—none assigned
Prime farmland status: Strawn and Rock outcrop—not prime farmland

Properties and Qualities of the Strawn Soil

Parent material: Till
Drainage class: Well drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of Rock Outcrop

Depth to restrictive feature (lithic bedrock): 0 inches
Hydric soil status: Not hydric
Surface runoff class: Very high

ThrA—Treaty silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions, swales, and flats on till plains
Position on landform: Toeslopes

Map Unit Composition

- 90 percent poorly drained Treaty soil
- 3 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 3 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 2 percent somewhat poorly drained Crosby and similar soils on summits on till plains
- 2 percent somewhat poorly drained Fincastle and similar soils on summits on till plains

Interpretive Groups

Land capability classification: Treaty—2w
Prime farmland status: Treaty—prime farmland where drained

Properties and Qualities of the Treaty Soil

Parent material: Loess or other silty material over till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete

Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Uaz—Udorthents, sandy

Setting

Landform: Areas of cut and fill

Map Unit Composition

- 100 percent Udorthents, sandy

Interpretive Groups

Land capability classification: Udorthents, sandy—none assigned
Prime farmland status: Udorthents, sandy—not prime farmland

Properties and Qualities of Udorthents, Sandy

Because of extreme variability, no soil series is representative of these soils. Generally, the soils consist of mixed sandy and gravelly material in areas that formerly were mined for sand and or gravel but are now supporting vegetation. Some areas have been graded.

Hydric soil status: Unranked
Surface runoff class: Very high

Uby—Udorthents, loamy

Setting

Landform: Areas of cut and fill

Map Unit Composition

- 100 percent Udorthents, loamy

Interpretive Groups

Land capability classification: Udorthents, loamy—none assigned
Prime farmland status: Udorthents, loamy—not prime farmland

Properties and Qualities of Udorthents, Loamy

Because of extreme variability, no soil series is representative of these soils.Generally, the soils consist of mixed loamy material in areas that have been used as a source of fill material, or they consist of the fill material itself.

Hydric soil status: Unranked
Surface runoff class: Very high

UfnA—Urban land-Crosby complex, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits and footslopes

Map Unit Composition

- 50 percent Urban land
- 45 percent somewhat poorly drained Crosby soil
- 3 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains
- 2 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Crosby—2w
Prime farmland status: Urban land and Crosby—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight

Susceptibility to wind erosion: Slight

UfoA—Urban land-Cyclone complex, 0 to 1 percent slopes

Setting

Landform: Depressions, flats, and swales on till plains
Position on landform: Toeslopes and summits

Map Unit Composition

- 50 percent Urban land
- 40 percent poorly drained Cyclone soil
- 8 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 2 percent somewhat poorly drained Fincastle and similar soils on summits on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Cyclone—2w
Prime farmland status: Urban land and Cyclone—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Cyclone Soil

Parent material: Loess or other silty material over till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 6.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UfxA—Urban land-Fincastle complex, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits and footslopes

Map Unit Composition

- 50 percent Urban land
- 42 percent somewhat poorly drained Fincastle soil
- 5 percent poorly drained Cyclone and similar soils on the toeslopes of depressions and swales on till plains
- 3 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Fincastle—2w
Prime farmland status: Urban land and Fincastle—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Fincastle Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Very slow to moderate
Depth to restrictive feature (dense material): 40 to 60 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight

Susceptibility to wind erosion: Slight

UhuA—Urban land-Mahalasville complex, 0 to 1 percent slopes

Setting

Landform: Depressions, flats, and swales on outwash plains
Position on landform: Toeslopes and summits

Map Unit Composition

- 50 percent Urban land
- 34 percent poorly drained Mahalasville soil
- 7 percent poorly drained Pella and similar soils on the toeslopes of depressions on outwash plains
- 7 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales and the summits of flats in glacial drainage channels and on outwash plains
- 1 percent somewhat poorly drained Starks and similar soils on summits on outwash plains
- 1 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales and the summits of flats in glacial drainage channels and on outwash plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Mahalasville—2w
Prime farmland status: Urban land and Mahalasville—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Mahalasville Soil

Parent material: Loess or other silty material over loamy outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

UkbB—Urban land-Miami complex, 2 to 6 percent slopes

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 50 percent Urban land
- 36 percent moderately well drained Miami soil
- 6 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains
- 4 percent moderately well drained Williamstown and similar soils on shoulders and backslopes on till plains
- 3 percent moderately well drained Rainsville and similar soils on shoulders and backslopes on till plains
- 1 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Miami—2e
Prime farmland status: Urban land and Miami—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

UkbC—Urban land-Miami complex, 6 to 12 percent slopes

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 50 percent Urban land
- 42 percent moderately well drained Miami soil
- 5 percent moderately well drained Rainsville and similar soils on shoulders and backslopes on till plains
- 2 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains
- 1 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Miami—3e
Prime farmland status: Urban land and Miami—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

UkbD—Urban land-Miami complex, 12 to 18 percent slopes

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 50 percent Urban land
- 42 percent moderately well drained Miami soil
- 5 percent moderately well drained Rainsville and similar soils on shoulders and backslopes on till plains
- 3 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Miami—4e
Prime farmland status: Urban land and Miami—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till

Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

UkpA—Urban land-Ockley complex, 0 to 2 percent slopes

Setting

Landform: Terraces
Position on landform: Summits

Map Unit Composition

- 50 percent Urban land
- 40 percent well drained Ockley soil
- 7 percent well drained Ockley, till substratum, and similar soils on summits on terraces
- 2 percent somewhat poorly drained Sleeth and similar soils on footslopes on terraces
- 1 percent poorly drained Westland and similar soils on the toeslopes of depressions and swales on terraces

Interpretive Groups

Land capability classification: Urban land—none assigned; Ockley—1
Prime farmland status: Urban land and Ockley—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Ockley Soil

Parent material: Thin layer of loess over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 72 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UkpB—Urban land-Ockley complex, 2 to 6 percent slopes

Setting

Landform: Terraces
Position on landform: Backslopes and shoulders

Map Unit Composition

- 50 percent Urban land
- 40 percent well drained Ockley soil
- 6 percent well drained Ockley, till substratum, and similar soils on backslopes and shoulders on terraces
- 2 percent well drained, severely eroded Ockley and similar soils on backslopes and shoulders on terraces
- 1 percent poorly drained Westland and similar soils on the toeslopes of depressions and swales on terraces
- 1 percent somewhat poorly drained Sleeth and similar soils on footslopes on terraces

Interpretive Groups

Land capability classification: Urban land—none assigned; Ockley—2e

Prime farmland status: Urban land and Ockley—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Ockley Soil

Parent material: Thin layer of loess over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate or moderately rapid
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 72 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

UmyA—Urban land-Treaty complex, 0 to 1 percent slopes

Setting

Landform: Depressions, swells, and flats on till plains
Position on landform: Toeslopes

Map Unit Composition

- 50 percent Urban land
- 44 percent poorly drained Treaty soil
- 2 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 2 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales and the summits of flats on till plains
- 1 percent somewhat poorly drained Crosby and similar soils on summits on till plains
- 1 percent somewhat poorly drained Fincastle and similar soils on summits on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Treaty—2w
Prime farmland status: Urban land and Treaty—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Treaty Soil

Parent material: Loess or other silty material over till
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

UnhA—Urban land-Wawaka complex, 0 to 2 percent slopes

Setting

Landform: Outwash-floored till plains
Position on landform: Summits

Map Unit Composition

- 50 percent Urban land
- 38 percent well drained Wawaka soil
- 7 percent well drained Ockley and similar soils on summits on outwash-floored till plains

- 5 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Wawaka—1
Prime farmland status: Urban land and Wawaka—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Wawaka Soil

Parent material: Thin layer of loess over till underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 60 to 120 inches
Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UnuA—Urban land-Whitaker complex, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes and summits

Map Unit Composition

- 50 percent Urban land
- 32 percent somewhat poorly drained Whitaker soil
- 7 percent moderately well drained Tuscola and similar soils on backslopes and shoulders on outwash plains
- 7 percent somewhat poorly drained Whitaker, till substratum, and similar soils on footslopes on outwash plains
- 4 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales on outwash plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Whitaker—2w
Prime farmland status: Urban land and Whitaker—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Whitaker Soil

Parent material: Silty outwash over loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

UnvB—Urban land-Williamstown-Crosby complex, 2 to 4 percent slopes

Setting

Landform: Till plains
Position on landform: Shoulders, backslopes, and footslopes

Map Unit Composition

- 50 percent Urban land

- 31 percent moderately well drained Williamstown soil on shoulders and backslopes on till plains
- 18 percent somewhat poorly drained Crosby soil on footslopes on till plains
- 1 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Urban land—none assigned; Williamstown—2e; Crosby—2w
Prime farmland status: Urban land, Williamstown, and Crosby—not prime farmland

Properties and Qualities of Urban Land

Urban land is covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Hydric soil status: Unranked
Surface runoff class: Very high

Properties and Qualities of the Williamstown Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 1.0 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Usl—Udorthents, rubbish

Setting

Landform: Sanitary landfills

Map Unit Composition

- 100 percent Udorthents, rubbish

Interpretive Groups

Land capability classification: Udorthents, rubbish—none assigned
Prime farmland status: Udorthents, rubbish—not prime farmland

Properties and Qualities of Udorthents, Rubbish

Because of extreme variability, no soil series is representative of these soils. Generally, the soils consist of mixed loamy material that has been used to cover mixtures of household, business, and industrial rubbish. The rubbish includes glass, metals, and similar items; organic material, such as paper and wood; plastics; and synthetics.

Hydric soil status: Unranked

W—Water

This map unit consists of natural bodies of water, such as ponds, lakes, and rivers.

WdrA—Wawaka silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash-floored till plains
Position on landform: Summits

Map Unit Composition

- 75 percent well drained Wawaka soil
- 15 percent well drained Ockley and similar soils on summits on outwash-floored till plains
- 10 percent moderately well drained Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Wawaka—1
Prime farmland status: Wawaka—prime farmland in all areas

Properties and Qualities of the Wawaka Soil

Parent material: Thin layer of loess over till underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 60 to 120 inches
Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

WdrB2—Wawaka silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash-floored till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 75 percent well drained Wawaka soil
- 15 percent Ockley and similar soils on backslopes and shoulders on outwash-floored till plains
- 10 percent Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Wawaka—2e
Prime farmland status: Wawaka—prime farmland in all areas

Properties and Qualities of the Wawaka Soil

Parent material: Thin layer of loess over till underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 60 to 120 inches
Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

WdrC2—Wawaka silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Outwash-floored till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 75 percent well drained Wawaka soil
- 15 percent Ockley and similar soils on shoulders on outwash-floored till plains
- 10 percent Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Wawaka—3e
Prime farmland status: Wawaka—not prime farmland

Properties and Qualities of the Wawaka Soil

Parent material: Thin layer of loess over till underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 60 to 120 inches

Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

WdrD2—Wawaka silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Outwash-floored till plains
Position on landform: Shoulders and backslopes

Map Unit Composition

- 75 percent well drained Wawaka soil
- 15 percent Ockley and similar soils on shoulders on outwash-floored till plains
- 10 percent Williamstown and similar soils on backslopes and shoulders on till plains

Interpretive Groups

Land capability classification: Wawaka—4e
Prime farmland status: Wawaka—not prime farmland

Properties and Qualities of the Wawaka Soil

Parent material: Thin layer of loess over till underlain by sandy and gravelly outwash
Drainage class: Well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderately slow to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 60 to 120 inches
Available water capacity: About 10.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth to seasonal high water table: More than 6.0 feet all year
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and low for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

WmnA—Waynetown silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes

Map Unit Composition

- 85 percent somewhat poorly drained Waynetown soil
- 8 percent somewhat poorly drained Fincastle and similar soils on footslopes on outwash plains
- 7 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales on outwash plains

Interpretive Groups

Land capability classification: Waynetown—2w
Prime farmland status: Waynetown—prime farmland where drained

Properties and Qualities of the Waynetown Soil

Parent material: Loess over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 50 to 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

WofB—Williamstown-Crosby silt loams, 2 to 4 percent slopes

Setting

Landform: Till plains

Position on landform: Shoulders, backslopes, and footslopes

Map Unit Composition

- 62 percent moderately well drained Williamstown soil on shoulders and backslopes on till plains
- 36 percent somewhat poorly drained Crosby soil on footslopes on till plains
- 2 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Williamstown—2e; Crosby—2w
Prime farmland status: Williamstown and Crosby—prime farmland where drained

Properties and Qualities of the Williamstown Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 1.0 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Properties and Qualities of the Crosby Soil

Parent material: Thin layer of loess over till
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 20 to 40 inches
Available water capacity: About 6.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

WqvA—Westland silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions, swales, and flats on terraces
Position on landform: Toeslopes and summits

Map Unit Composition

- 70 percent poorly drained Westland soil
- 15 percent poorly drained Mahalaland and similar soils on the toeslopes of depressions and swales and the summits of flats on terraces
- 9 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales and the summits of flats on terraces
- 6 percent somewhat poorly drained Sleeth and similar soils on summits on terraces

Interpretive Groups

Land capability classification: Westland—2w
Prime farmland status: Westland—prime farmland where drained

Properties and Qualities of the Westland Soil

Parent material: Loess or other silty material over loamy outwash underlain by sandy and gravelly outwash
Drainage class: Poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to very rapid
Depth to restrictive feature (strongly contrasting textural stratification): 40 to 60 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high

water table: At the surface, January, February, and December
Ponding: Frequent, most likely in January, February, March, and December
Hydric soil status: Hydric
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

WtaA—Whitaker silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and terraces (fig. 6)
Position on landform: Footslopes and summits

Map Unit Composition

- 62 percent somewhat poorly drained Whitaker soil
- 15 percent moderately well drained Tuscola and similar soils on backslopes and shoulders on outwash plains
- 15 percent somewhat poorly drained Whitaker, till substratum, and similar soils on footslopes on outwash plains
- 8 percent poorly drained Mahalasville and similar soils on the toeslopes of depressions and swales on outwash plains

Interpretive Groups

Land capability classification: Whitaker—2w
Prime farmland status: Whitaker—prime farmland where drained

Properties and Qualities of the Whitaker Soil

Parent material: Silty outwash over loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches

Figure 6.—Corn planted in an area of Whitaker silt loam, 0 to 2 percent slopes.

Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest apparent seasonal high water table: 0.5 foot, January, February, and March
Hydric soil status: Not hydric
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

XfuB2—Miami-Rainsville complex, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 60 percent moderately well drained Miami soil
- 30 percent moderately well drained Rainsville soil
- 3 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains
- 3 percent somewhat poorly drained Fincastle and similar soils on footslopes on loess-mantled till plains
- 3 percent moderately well drained, severely eroded Miami and similar soils on backslopes and shoulders on till plains
- 1 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Miami and Rainsville—2e
Prime farmland status: Miami and Rainsville—prime farmland in all areas

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Properties and Qualities of the Rainsville Soil

Parent material: Thin layer of loess over glaciofluvial deposits underlain by till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Very slow to moderate
Depth to restrictive feature (dense material): 45 to 60 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

XfuC2—Miami-Rainsville complex, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Map Unit Composition

- 65 percent moderately well drained Miami soil
- 25 percent moderately well drained Rainsville soil
- 4 percent moderately well drained, severely eroded Miami and similar soils on backslopes and shoulders on till plains
- 2 percent somewhat poorly drained Crosby and similar soils on footslopes on till plains

- 2 percent somewhat poorly drained Fincastle and similar soils on footslopes on till plains
- 1 percent moderately well drained, severely eroded Rainsville and similar soils on backslopes and shoulders on till plains
- 1 percent poorly drained Treaty and similar soils on the toeslopes of depressions and swales on till plains

Interpretive Groups

Land capability classification: Miami and Rainsville—3e
Prime farmland status: Miami and Rainsville—not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Thin layer of loess over till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Very slow to moderate
Permeability below a depth of 40 inches: Very slow or slow
Depth to restrictive feature (dense material): 24 to 40 inches
Available water capacity: About 6.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Rainsville Soil

Parent material: Thin layer of loess over glaciofluvial deposits underlain by till
Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Very slow to moderate
Depth to restrictive feature (dense material): 40 to 60 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of highest perched seasonal high water table: 2.0 feet, January, February, March, April, and December
Hydric soil status: Not hydric
Potential for frost action: Moderate
Corrosivity: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

According to the “1997 Census of Agriculture” (USDA, 1999), farms make up about 228,328 acres in Boone County. About 212,137 acres is used for crops; about 8,831 acres is used for pasture; and 7,537 acres is woodland. Most of the strongly sloping to steep soils are used for pasture or woodland. Cash grain, hay, and livestock are the major agricultural commodities in the county. Some areas are used for Christmas tree or sod farms (fig. 7). Corn and soybeans are the main cash grain crops. Hogs, beef cattle, horses, sheep, and poultry are the main kinds of livestock, and the county has a few dairy farms. The average farm size increased from 169 acres in 1969 to 374 acres in 1997 (USDA, 1999). Modern farming methods and equipment have made this increase possible.

The potential of the soils in Boone County for increased food crop production is good. Food production can be increased by extending the latest crop production technology to all of the cropland in the county. This soil survey can facilitate the application of such technology.

Field crops suited to the soils and climate in the county include those that are currently grown and some that are not commonly grown. Corn, soybeans, and wheat are the principal cultivated crops. Other cultivated crops are oats and rye. Alfalfa, alsike clover, redtop, red clover, fescue, and orchardgrass are the most common crops grown for hay and pasture. A few specialty crops are grown in the county, mainly Christmas trees and sod. The latest information about growing cultivated crops, hay and pasture crops, and specialty crops can be obtained from local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

The paragraphs that follow describe the main management concerns affecting the use of the soils in the county for crops and pasture. These concerns are wetness, water erosion, tilth, and fertility.

Wetness is a major management concern in areas of the naturally wet, poorly drained or very poorly drained Cyclone, Mahalaland, Mahalasville, Sloan, Southwest, Treaty, and Westland soils (fig. 8). Production of the crops commonly grown in the county is generally not practical on these soils unless a drainage system is installed. Somewhat poorly soils, such as Crosby, Fincastle, and Starks soils, also are

Figure 7.—Christmas tree farm in an area of Ockley silt loam, 2 to 6 percent slopes, eroded.

Figure 8.—Ponding after a heavy rain in an area of Treaty silty clay loam, 0 to 1 percent slopes.

subject to wetness. Unless these soils are artificially drained, wetness may damage crops or delay planting in most years.

Various land use regulations of Federal, State, and local governments may impose special restrictions on the use of soils. An example is the protection of wetlands. Statements made in this section about wetness are intended to help the land user identify and reduce the effects of wetness. The landowner or user has the responsibility of identifying and complying with existing laws and regulations.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface and subsurface drains is needed on some soils that are intensively row cropped. Subsurface drains should be more closely spaced in slowly permeable or very slowly permeable soils than in more permeable soils. Filtering material is generally needed in subsurface drains in soils that have minimum grades and a high content of silt. Finding adequate outlets for subsurface drainage systems is difficult in some areas.

Further information about the design of drainage systems for each kind of soil is provided in the Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Water erosion is a major management concern in the areas of cropland or pasture where the slope is more than about 2 percent. Loss of the surface layer through erosion is damaging for two main reasons. First, productivity is reduced as fertilizer, pesticides, herbicides, and organic matter are removed from the surface layer. The natural tilth of some soils, such as Miami soils, deteriorates as part of the more clayey subsoil is incorporated into the surface layer. Seedbed preparation becomes more difficult, and seed germination is hindered. Loss of the surface layer is especially damaging on soils that are shallow or moderately deep to coarse textured material or to dense till. The root zone in these soils consists mainly of the part of the profile above the limiting layer. As the surface layer is lost, the thickness of the root zone and the available water capacity are reduced. Fox soils are moderately deep to coarse textured material. Crosby,

Miami and Williamstown soil have dense glacial till within a depth of 40 inches.

Second, erosion results in the sedimentation and pollution of ditches, lakes, and streams. Controlling erosion minimizes sedimentation and pollution and improves water quality for fish and wildlife, for municipal use, and for recreational uses.

Some areas in the county are so eroded that a network of U-shaped and/or V-shaped channels has formed in the soils. These channels are called gullies. In these gullies the entire surface layer and much of the subsoil have been removed.

Planting cover crops helps to control erosion on the more sloping soils. Cover crops are especially important after soybeans, corn for silage, and tobacco are harvested. Tillage methods that leave crop residue on 50 percent or more of the surface can protect most of the sloping soils from unacceptable levels of erosion during winter and early spring.

A conservation tillage system helps to hold soil losses to an acceptable level on most of the sloping soils. If row crops are grown year after year on sloping soils, soil losses generally are high, unless a conservation tillage system is applied.

No-till and strip-till cropping systems are effective in minimizing soil loss on the sloping soils used for corn or soybeans. These conservation tillage systems can be adapted to many of the soils in the county that are susceptible to erosion. When no-till and strip-till systems are used in areas that have a thick vegetative cover or protective amounts of crop residue, soil moisture evaporates at a slower rate and the weed population is greatly reduced. Miami and Rainsville soils are examples of sloping soils that are suitable for no-till and strip-till systems.

Contour farming can be used in several areas of the county. It is difficult, however, in areas where slopes are short and irregular. Other conservation measures may be more suitable.

Riparian buffer strips are useful in limiting the amount of sediment and pollutants that enter streams (fig. 9).

Water- and sediment-control basins are effective in reducing the rate of runoff in drainageways. They are

Figure 9.—A buffer strip in an area of Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration. Miami-Rainsville complex, 6 to 12 percent slopes, eroded, is in the area planted to corn.

Figure 10.—Wooden drop box structure in an area of Miami clay loam, 6 to 12 percent slopes, severely eroded.

most effective where subsurface tile can be installed as an outlet and on soils that have slopes of about 8 percent or less. Miami and Williamstown soils are examples.

Grassed waterways are needed to protect the channels that drain a watershed. Subsurface drains are needed in areas where wetness or seepage is a problem in the waterways.

Grade-stabilization structures are needed in many areas of the county where drainageways overfall into more sloping drainageways (fig. 10). These structures stabilize the overfall in the drainageways and minimize gully erosion.

Information about the type and design of erosion-control practices that are best suited to each kind of soil is available at the local office of the Natural Resources Conservation Service.

Tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Many of the soils used for row crops in the county have a surface layer of silt loam that has a moderate to low content of organic matter. Where little or no crop residue is on the surface, a hard surface crust forms after periods of intensive rainfall. The hard crust reduces the infiltration rate, increases the runoff rate, and inhibits plant emergence. Regular additions of crop residue, cover crops, manure, and other organic material improve soil structure and help to minimize crusting. Cyclone, Mahalasville, Mahalaland, Sloan, Treaty, and Westland soils and the severely eroded Miami soils have a moderately fine textured surface layer. Tilth is a management concern on these soils. If tilled when too wet, the surface layer becomes very cloddy when dry and cannot be easily worked. As a result, preparing a good seedbed is very difficult. Fall tillage of these soils generally results in better tilth in the spring.

Many of the soils in the county have a silty or loamy surface layer that is easily compacted. Tilling or grazing when the soils are wet causes surface compaction, which restricts penetration by tillage equipment and plant roots and limits plant growth.

Fertility is mainly affected by reaction and by the content of plant nutrients and organic matter. On soils that have a pH below about 6.4, applications of ground limestone are needed to raise the pH level sufficiently for the best utilization of plant nutrients by cultivated crops, such as corn and soybeans, and thus for optimum yields. Ground limestone also is needed if these soils are used for hay or pasture plants, such as alfalfa and red clover. The supply of available phosphorus and potassium is generally below the level needed for good plant growth in most areas of the county where fertilizer has never been applied. On all soils, additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to be applied.

Pasture plants commonly grown in the county are mixtures of tall fescue, orchardgrass, bromegrass, timothy, alfalfa, and red clover. Other pasture plants are bluegrass, ladino clover, redtop, alsike clover, lespedeza, and sweetclover. Most of the soils in the county are well suited to grasses, such as tall fescue, timothy, and orchardgrass, and to legumes, such as red clover, ladino clover, alfalfa, and lespedeza.

Legumes generally grow poorly on poorly drained or very poorly drained soils, such as Cyclone, Mahalaland, Mahalasville, Sloan, Southwest, Treaty, and Westland soils. These soils are well suited to water-tolerant grasses. Ockley and other well drained soils are well suited to deep-rooted legumes. The latest information about recommended grasses and legumes for each soil type can be obtained from local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

Limitations and Hazards Affecting Cropland

The main management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in table 5. The main concerns in managing cropland are controlling erosion; reducing soil wetness and ponding; minimizing surface crusting and clodding; operating equipment safely on steep slopes; and limiting the effects of restricted permeability and low available water capacity.

Some of the limitations and hazards shown in the table cannot be easily overcome. These include *flooding, a limited rooting depth, restricted permeability, a low available water capacity,* and *subsidence*.

Generally, a combination of several practices is needed to control both *water erosion* and *wind erosion*. Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, grassed waterways, and field windbreaks help to prevent excessive soil loss. Soils that have deep or wide gullies are generally not suitable for use as cropland.

In some areas of cropland, *wetness* is a limitation and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed. Generally, soils that are ponded for long or very long periods during the growing season are not suitable for use as cropland.

Practices that minimize *surface crusting* and *clodding* include incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage. Surface cloddiness can be minimized by deferring tillage when the soil is too wet.

Measures that conserve moisture are needed in areas where the soils have a *low or moderate available water capacity*. These measures primarily involve reducing the evaporation and runoff rates and increasing the water infiltration rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Both a *low pH* and a *high pH* (soil reaction) inhibit the uptake of certain nutrients by the plants or accelerate the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific crop. The surface layer of most of the soils in the county has a low pH, except for some soils on flood plains. For most soils in the county, the pH should be raised to an optimal level for the crop being grown. On soils with a high pH, treatment may be needed to lower the pH so that certain elements are adequately available for crop growth.

Some soils have an *equipment limitation* because of the slope. In areas where slopes are 15 percent or

more, the operation of farm equipment may be restricted and could become hazardous. Generally, soils with an average slope of 18 percent or more are not suitable for use as cropland.

The use of equipment also is limited in areas where 3 percent or more of the surface is covered with stones or boulders and in areas where the soil has a gravelly or cobbly surface layer. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during planting operations.

A *limited rooting depth* is a management concern in areas of soils that have root-restricting layers, such as bedrock, a fragipan, dense till, or stratified sand and gravel, within a depth of 40 inches. These layers restrict the amount of moisture available for plant growth.

Crops can be damaged if the soil is subject to occasional or frequent periods of *flooding* during the growing season (fig. 11). Small grain crops grown in the winter are especially susceptible to damage. Water-tolerant species should be selected for planting in areas that are subject to flooding during the growing season.

Subsidence is the loss or settlement of organic soil layers through oxidation of organic soil material. Saturating the organic layers by raising the water table during periods when crops are not grown can minimize the oxidation of organic layers.

Following is an explanation of the criteria used to determine the limitations or hazards.

Clodding.—The soil has 35 percent or more clay in the surface layer.

Crusting.—The content of organic matter in the surface layer is 2 percent or less, the percent passing the number 200 sieve is more than 50 percent, and the content of clay is 32 percent or less.

Equipment limitation.—The soil has an average slope of 15 percent or more, stones or boulders cover 3 percent or more of the surface, or the surface layer has 15 percent or more rock fragments.

Flooding.—The soil is subject to occasional or frequent periods of flooding during the growing season.

Figure 11.—Flooding in an area of Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration, along Eagle Creek, south of Zionsville.

High pH.—The natural pH level is 7.4 or more in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Low available water capacity.—The weighted average of the available water capacity is 0.05 inch to less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Low pH.—The natural pH level is 6.0 or less in the surface layer.

Moderate available water capacity.—The weighted average of the available water capacity is 0.10 inch to less than 0.15 inch of water per inch of soil within a depth of 60 inches.

Ponding.—The soil is subject to occasional or frequent periods of ponding during the growing season.

Restricted permeability.—Permeability is less than 0.2 inch per hour in one or more layers within a depth of 40 inches.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is more than 0.8, and the average slope is 3 percent or more.

Wetness.—The soil has a water table within a depth of 1.5 feet during the growing season.

Wind erosion.—The soil is in wind erodibility group 1 or 2 (or in group 3 if the soil is not on a flood plain).

Limitations and Hazards Affecting Pasture

Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and climate of the county helps to maintain a productive stand of pasture.

The management concerns affecting the use of the soils in the county for pasture are shown in table 5. The main management concerns are erosion, an equipment limitation, wetness and ponding, trafficability, and a low or very low available water capacity.

In Boone County most of the soils suitable for legumes have a high potential for frost action. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about legumes that are subject to damage from frost heave. This hazard is not listed in table 5 because it applies to the majority of the soils.

Some of the limitations and hazards shown in table 5 cannot be easily overcome. These are *depth to bedrock, low or very low available water capacity, subsidence,* and *flooding*.

Both *water erosion* and *wind erosion* reduce the productivity of pasture. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, planting field windbreaks, farming on the contour, and using a system of conservation tillage that leaves a protective cover of crop residue on the surface can help to minimize erosion. Soils that have deep or wide gullies are generally not suitable for use as pasture.

In some pastured areas, *wetness* is a limitation and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed. Generally, soils that are ponded for long or very long periods during the growing season are not suitable for pasture. Overgrazing or grazing when the soil is wet reduces the extent of the plant cover and results in surface compaction, and thus it increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition.

Subsidence is the loss or settlement of organic soil layers through oxidation of organic soil material. Saturating the organic layers by raising the water table during periods when the pasture is not grazed can minimize the oxidation of organic soil layers.

Trafficability of both livestock and machinery across the soil is a limitation on soils that are wet and have a loamy, clayey, or organic surface layer. The proper location of livestock facilities for watering, feeding, and shelter helps to minimize surface compaction and the formation of ruts and thus helps to prevent damage to the pasture.

Some soils have an *equipment limitation* because of the slope. In areas where slopes are 15 percent or more, the operation of farm equipment may be restricted and could become hazardous. Generally, soils with an average slope of 25 percent or more are not suitable for use as pasture.

The use of equipment also is limited in areas where 3 percent or more of the surface is covered with stones or boulders and in areas where the soil has a gravelly or cobbly surface layer. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during reseeding and planting operations.

Soils that have root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and

gravel, within a depth of 40 inches have a *limited rooting depth*. These layers limited the amount of water available for plant growth.

Available water capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of forage may be reduced on soils that have a *low or very low available water capacity*. The soil moisture may be inadequate for maintenance of a healthy community of desired pasture species and, thus, the desired number of livestock. A poor-quality pasture may increase the hazard of erosion and the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish a cover of vegetation. Irrigation may be needed.

Both a *low pH* and a *high pH* (soil reaction) inhibit the uptake of certain nutrients by plants or accelerate the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

Following is an explanation of the criteria used to determine the limitations or hazards.

Equipment limitation.—The soil has an average slope of 15 percent or more, stones or boulders cover 3 percent or more of the surface, or the surface layer has 15 percent or more rock fragments.

Flooding.—The soil is subject to occasional or frequent periods of flooding during the growing season.

High pH.—The pH level is 7.4 or more in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Limited trafficability.—The soil is somewhat poorly drained, poorly drained, or very poorly drained, and the surface layer is loamy or clayey or is organic soil material.

Low or very low available water capacity.—The weighted average of the available water capacity is less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Low pH.—The pH level is 6.0 or less in the surface layer.

Ponding.—The soil is subject to occasional or frequent periods of ponding during the growing season.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is more than 0.8, and the average slope is 3 percent or more.

Wetness.—The soil is poorly drained or very poorly drained.

Wind erosion.—The soil is in wind erodibility group 1 or 2 (or group 3 if the soil is not on a flood plain).

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about the management and productivity of the soils for pasture plants.

Crop Yield Estimates

The average yields per acre that can be expected for the principal crops under a high level of management are shown in table 6. The principal crops are corn, soybeans, winter wheat, grass-legume hay, and pasture. Yields for each map unit are based on a composite average of all soil components that are typically in the map unit. They were calculated on the basis of a specific value for corn yields. Yields for the other crops listed in the table were calculated as a percentage relative to the corn yield. In any given year, yields may be higher or lower than those indicated in the table. These differences are the result of variations in rainfall and other climatic factors; varieties grown; environmental factors, such as plant diseases and insect infestations; and type of fertility program. The land capability classification of each map unit also is shown in the table.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage; erosion control; protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed and implemented. The relative productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The

local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Forage yield estimates are often estimated in animal unit months (AUM), or the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month. Yields for hay and pasture crops vary widely, depending on the type and combination of grasses and legumes grown. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about forage yields.

Under good management, proper grazing is essential for the production of high-quality forage and for stand survival and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the map units in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses (fig. 12). The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding and wetness, are needed (fig. 13). Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Figure 12.—A new subdivision in an area of Crosby silt loam, 0 to 2 percent slopes, near Whitestown.

Figure 13.—Planting corn in an area of Crosby silt loam, 0 to 2 percent slopes, and Treaty silty clay loam, 0 to 1 percent slopes. Where drained, these soils are considered prime farmland.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the

redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

CxdA—Cyclone silty clay loam, 0 to 1 percent slopes
MamA—Mahalasville silty clay loam, 0 to 1 percent slopes
MaoA—Mahalaland silty clay loam, 0 to 1 percent slopes
SnlAP—Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration
SocAH—Sloan silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration
SocAW—Sloan silty clay loam, 0 to 1 percent slopes, occasionally flooded, very brief duration
ThrA—Treaty silty clay loam, 0 to 1 percent slopes
UfoA—Urban land-Cyclone complex, 0 to 1 percent slopes
UhuA—Urban land-Mahalasville complex, 0 to 1 percent slopes
UmyA—Urban land-Treaty complex, 0 to 1 percent slopes
WqvA—Westland silty clay loam, 0 to 1 percent slopes

Map units that are made up of hydric soils may have small areas, or included components, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. Within these map units, however, are areas of hydric soils. The list includes the component with hydric characteristics and the average percentage of the component in the map unit. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

CudA—Crosby silt loam, 0 to 2 percent slopes; Treaty and similar soils, 2 percent
EdeAW—Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration; Sloan and similar soils, 3 percent
FdbA—Fincastle silt loam, 0 to 2 percent slopes; Cyclone and similar soils, 10 percent
FdhA—Fincastle-Crosby silt loams, 0 to 2 percent slopes; Treaty and similar soils, 5 percent
MjkAH—Medway and Beckville soils, 0 to 2 percent slopes, frequently flooded, brief duration; Sloan and similar soils, 2 percent
MnpB2—Miami silt loam, 2 to 6 percent slopes, eroded; Treaty and similar soils, 2 percent
MnpC2—Miami silt loam, 6 to 12 percent slopes, eroded; Treaty and similar soils, 3 percent
ObxA—Ockley silt loam, 0 to 2 percent slopes; Westland and similar soils, 1 percent
ObxB2—Ockley silt loam, 2 to 6 percent slopes, eroded; Westland and similar soils, 2 percent
RtuAH—Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration; Sloan and similar soils, 5 percent
SldAH—Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration; Sloan and similar soils, 10 percent
SldAW—Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration; Sloan and similar soils, 10 percent
SngA—Sleeth silt loam, 0 to 2 percent slopes; Westland and similar soils, 3 percent
SteA—Starks silt loam, 0 to 2 percent slopes; Mahalasville and similar soils, 5 percent
StjA—Starks-Crosby silt loams, 0 to 2 percent slopes; Cyclone and similar soils, 5 percent, and Mahalasville and similar soils, 5 percent
UfnA—Urban land-Crosby complex, 0 to 2 percent slopes; Treaty and similar soils, 2 percent
UfxA—Urban land-Fincastle complex, 0 to 2 percent slopes; Cyclone and similar soils, 5 percent
UkbB—Urban land-Miami complex, 2 to 6 percent slopes; Treaty and similar soils, 1 percent
UkbC—Urban land-Miami complex, 6 to 12 percent slopes; Treaty and similar soils, 2 percent
UkpA—Urban land-Ockley complex, 0 to 2 percent slopes; Westland and similar soils, 1 percent
UkpB—Urban land-Ockley complex, 2 to 6 percent slopes; Westland and similar soils, 1 percent
UnuA—Urban land-Whitaker complex, 0 to 2 percent slopes; Mahalasville and similar soils, 4 percent
UnvB—Urban land-Williamstown-Crosby complex, 2 to 4 percent slopes; Treaty and similar soils, 1 percent
WmnA—Waynetown silt loam, 0 to 2 percent slopes; Mahalaland and similar soils, 7 percent
WofB—Williamstown-Crosby silt loams, 2 to 4 percent slopes; Treaty and similar soils, 2 percent
WtaA—Whitaker silt loam, 0 to 2 percent slopes; Mahalasville and similar soils, 8 percent

XfuB2—Miami-Rainsville complex, 2 to 6 percent slopes, eroded; Treaty and similar soils, 1 percent
XfuC2—Miami-Rainsville complex, 6 to 12 percent slopes, eroded; Treaty and similar soils, 1 percent

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 8 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens.

Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Forestland

Hardwood forest once covered most of the land in Boone County, but many of the trees have been removed from land suitable for cultivation. According to the “1997 Census of Agriculture” (USDA, 1999), about 7,537 acres in Boone County is woodland. Much of the remaining forest cover is in steep or very steep areas on uplands. Many small tracts are on level, poorly drained or very poorly drained soils. The soils vary widely in their suitability for trees. Under proper management, many of the soils in the county can produce trees of high quality (fig. 14).

Site characteristics that affect tree growth include aspect, or the direction the slope is facing, and position on the slope. These characteristics influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. North- and east-facing slopes and low areas on the landscape are generally the best upland sites for tree growth because they are cooler and have better moisture conditions than south- and west-facing slopes.

Soil properties are fundamentally important for woodland production. Twenty-five percent or more of the mass of a tree is in the soil, which serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soil properties that affect the growth of trees include reaction, fertility, wetness, texture, structure, slope, and depth. Trees grow best on soils that do not have properties in the extreme range and that have an effective rooting depth of more than 40 inches.

Soil wetness is the result of a high water table, flooding, or ponding. Wetness causes seedling mortality, limits the use of equipment, and increases the windthrow hazard by restricting the rooting depth of some trees. Ruts form easily if wheeled skidders are used when the soils are wet. The formation of deep ruts restricts lateral drainage, damages tree roots, and alters soil structure. Flooding is a hazard on some soils. On soils that are subject to flooding or ponding, equipment should be used only during dry periods or when the ground is frozen.

The slope can limit the use of forestry equipment. A slope of 15 percent or more limits the use of equipment in logging and yarding areas and on skid trails and unsurfaced logging roads. Erosion is a hazard in these disturbed areas. Special erosion-control measures, such as water bars or dips, and logging roads and skid trails that are designed to minimize the steepness and length of slopes and to prevent the concentration of water help to control erosion. Steep slopes are a safety hazard and limit the use of equipment. Equipment should be operated on the contour where possible for erosion control, but steepness of slope may present a safety issue. On the steepest slopes, logs should be moved uphill to skid trails and yarding areas.

Forestland productivity can be influenced by management activities. These include thinning young stands, harvesting mature trees, preventing fire, and avoiding the use of woodland for grazing. Forest fires are no longer a major problem in the county, but some of the forestland is used for grazing. Grazing destroys the leaf layer, compacts the soil, and destroys or damages seedlings. Forestland sites that are not used for grazing and that are protected from fire have the highest potential for production.

Figure 14.—Mixed hardwood forest in an area of Fincastle and Treaty soils.

Much of the existing commercial forestland in Boone County can be improved by thinning out mature trees and undesirable species. Protection from grazing and fire and control of disease and insects also can improve the stands. The Natural Resources Conservation Service, the State Division of Forestry, consulting foresters, or the Cooperative Extension Service can help to determine specific woodland management needs. Assistance in establishing, improving, or managing forestland is available from foresters or natural resources specialists.

Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 9, the *potential productivity* of merchantable trees on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 10A, 10B, 10C, and 10D, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified

practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate*, *and high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage (referred to as landslides in the table), content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage (referred to as landslides in the table). The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage (referred to as landslides in the table). The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand,

plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

The soils of the survey area are rated in tables 11A and 11B according to limitations that affect their suitability for recreation.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered (fig. 15). Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a fragipan (referred to as a cemented pan in the tables) are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a fragipan (referred to as a cemented pan in the tables), permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under

Figure 15.—Flooding in an area of Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration, in Zionsville Park.

heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a fragipan (referred to as a cemented pan in the tables), permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a fragipan (referred to as a cemented pan in the tables), permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a fragipan (referred to as a cemented pan

in the tables); the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

The information in tables 11A and 11B can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, and sanitary facilities.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples

of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, depth to fragipan (referred to as a cemented pan in the tables), soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance (fig. 16). Tables 13A and 13B show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very

Figure 16.—A new subdivision in an area of Miami silt loam, 2 to 6 percent slopes, eroded, in Zionsville.

favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), hardness of bedrock or a fragipan (referred to as a cemented pan in the tables), and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of

spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a fragipan (referred to as a cemented pan in the tables), hardness of bedrock or a fragipan (referred to as a cemented pan in the tables), depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action (fig. 17), depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing (caving of

Figure 17.—A road damaged by frost heave.

cutbanks). Depth to bedrock or a fragipan (referred to as a cemented pan in the tables), hardness of bedrock or a fragipan (referred to as a cemented pan in the tables), the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing (fig. 18).

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a fragipan (referred to as a cemented pan in the tables); the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Figure 18.—Caving of a basement excavation.

Sanitary Facilities

Tables 14A and 14B show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the

absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

When the site feasibility for septic tank absorption fields is determined, the local health department should be contacted for procedures and local septic codes.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and a fragipan (referred to as a cemented pan in the tables) can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a fragipan (referred to as a cemented pan in the tables) to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil (fig. 19). The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a fragipan (referred to as a cemented pan in the tables).

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area

Figure 19.—A sanitary landfill in an area of Udorthents, rubbish.

sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a fragipan (referred to as a cemented pan in the tables), reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a fragipan (referred to as a cemented pan in the tables), or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 15A and 15B give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15A, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of

thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of gravel and sand (fig. 20). A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading,

Figure 20.—A new gravel pit in an area of Wawaka silt loam, 0 to 2 percent slopes.

and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in the conservation of energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of wastewater for irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes. Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

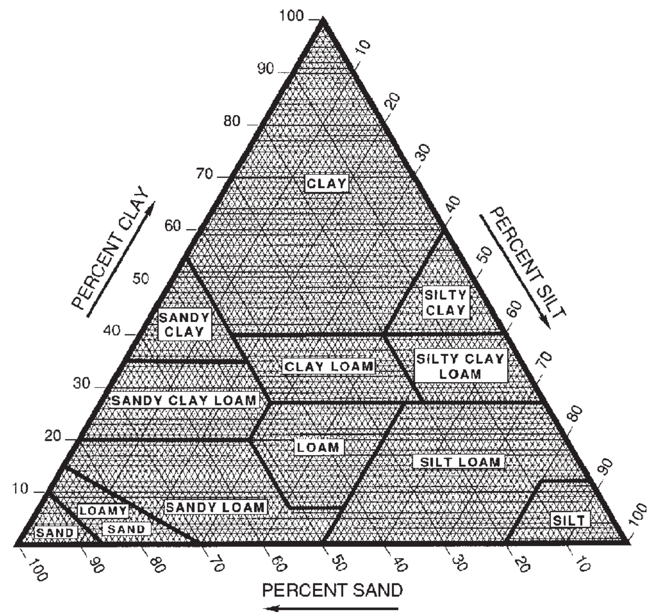

Figure 21.—Percentages of clay, silt, and sand in the basic USDA texture classes.

Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 to 6 feet. Representative USDA textures and representative values for Unified and AASHTO classifications are indicated by an asterisk in table 16.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 21). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified

in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Tables 17A and 17B show estimates of some characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 17A, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 17A, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 17A, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In table 17A, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in table 17A indicate the rate of water movement, in inches per hour, when

the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in table 17A as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 17A, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 17B as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are defined in the "National Soil Survey Handbook" (USDA, NRCS, NSSH).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Slope length is the horizontal distance from the origin of overland flow to the point where the slope gradient decreases enough that either deposition begins or runoff becomes concentrated in a defined channel (USDA, 1997). Table 17B shows the representative value (rv).

Slope gradient is the difference in elevation between two points and is expressed as a percentage of the distance between those points. For example, a difference in elevation of 1 foot over a horizontal distance of 100 feet is a slope of 1 percent. Table 17B shows the representative value (rv).

Chemical Properties

Table 18 shows estimates of *cation-exchange capacity*, *effective cation-exchange capacity, soil reaction*, and *calcium carbonate equivalent*.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams

of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides (fig. 22). Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1

Figure 22.—Flooding in an area of Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration.

percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation.

Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and

shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Potential for soil slippage is the susceptibility of a soil mass to movement downslope when loaded, excavated, or wet. Soil slippage is caused by several natural factors, and the potential is greatly increased by human activity. Type of bedrock and depth to bedrock, slope gradient, landform position, clay mineralogy, and the shrink-swell potential are the most important natural factors. Shallow soils that formed in shale residuum, have clay mineralogy, have a high shrink-swell potential, and are on steep footslopes or backslopes are the most susceptible to soil slippage.

Soils that have a medium or high potential for slippage are even more susceptible to slippage where certain types of human activity take place. The activities that increase the potential for soil slippage include making cuts in hillsides during construction of roadbeds and houses; changing surface water runoff patterns, allowing water from leaking water and sewer lines to concentrate; increasing weight on slopes by building structures or placing fill on building sites; changing the course of streams, increasing streamflow, or removing rock from the streambed, causing the base of slopes to be undercut; and removing vegetation.

Soil slippage causes damage to roads and structures and can endanger human life. Areas that have slipped are susceptible to additional slippage and are generally too unstable for most construction uses.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquoll (*Aqu*, meaning water, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argiaquolls (*Argi*, meaning argillic horizon, plus *aquoll*, the suborder of the Mollisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Argiaquolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Argiaquolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Beckville Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Beckville loam, on a slope of less than 1 percent in a cultivated field at an elevation of 780 feet above mean sea level; Montgomery County, Indiana; about 2$^1/_2$

miles north of Mace; 600 feet east and 2,350 feet south of the northwest corner of sec. 32, T. 19 N., R. 3 W.; USGS Darlington, Indiana, topographic quadrangle; lat. 40 degrees 2 minutes 52.3 seconds N. and long. 86 degrees 47 minutes 17.6 seconds W., NAD 27; UTM Zone 16, 518064 easting and 4433097 northing, NAD 83:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine roots; slightly alkaline; abrupt smooth boundary.
Bw1—11 to 21 inches; brown (10YR 4/3) loam; weak medium granular structure; friable; common fine roots; few distinct dark brown (10YR 3/3) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
Bw2—21 to 28 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; few fine roots; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.
Cg1—28 to 44 inches; dark grayish brown (10YR 4/2) loam; massive; friable; many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.
Cg2—44 to 60 inches; grayish brown (10YR 5/2) sandy loam; massive; very friable; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—loam or silt loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent

A horizon, where present:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—loam or silt loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent
Thickness— 2 to 5 inches

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, sandy loam, or fine sandy loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent

Cg or C horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam or sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 14 percent

Camden Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 111

Camden silt loam, on a 1 percent slope in a cultivated field at an elevation of 665 feet above mean sea level; Tippecanoe County, Indiana; about 2 miles south of Monitor; 300 feet east and 1,640 feet south of the northwest corner of sec. 34, T. 23 N., R. 3 W.; USGS Lafayette East, Indiana, topographic quadrangle; lat. 40 degrees 23 minutes 53.1 seconds N. and long. 86 degrees 45 minutes 2 seconds W., NAD 27; UTM Zone 16, 521168 easting and 4471975 northing, NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
Bt1—9 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; firm; common fine roots; few fine pores; common distinct brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.
Bt2—15 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots; common fine pores; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; neutral; clear smooth boundary.
Bt3—22 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; common distinct dark brown (7.5YR

3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt4—29 to 33 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt5—33 to 39 inches; brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; common fine pores; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt6—39 to 50 inches; brown (7.5YR 4/4) fine sandy loam; weak coarse subangular blocky structure; firm; common fine pores; one 3-inch layer of gravelly sandy loam; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt7—50 to 64 inches; dark yellowish brown (10YR 4/4) loam; weak coarse subangular blocky structure; friable; common fine pores; few distinct dark brown (7.5YR 3/2) clay films on faces of peds; common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2C—64 to 80 inches; yellowish brown (10YR 5/4), stratified loam and sandy loam; massive; friable; few medium very dark grayish brown (10YR 3/2) masses of manganese accumulation; neutral.

Range in Characteristics for MLRA 111

Thickness of the loess: 24 to 40 inches
Depth to the base of the argillic horizon: 30 to 65 inches
Depth to carbonates: More than 60 inches

Ap horizon:
Hue—10YR
Value—3 to 5; value of 3 occurring only in horizons that are less than 6 inches thick
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to neutral

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, fine sandy loam, sandy loam, clay loam, sandy clay loam, or silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, or silt loam with thin strata of other textures
Reaction—strongly acid to moderately alkaline
Content of rock fragments—0 to 13 percent

Crosby Series

Taxonomic classification: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Crosby silt loam (fig. 23), on a 1 percent slope in a cultivated field at an elevation of 1,070 feet above mean sea level; Henry County, Indiana; about 2 miles north of Cadiz; 1,000 feet north and 330 feet west of the southeast corner of sec. 27, T. 18 N., R. 9 E.; USGS New Castle West, Indiana, topographic quadrangle; lat. 39 degrees 58 minutes 41.76 seconds N. and long. 85 degrees 28 minutes 56.43 seconds W., NAD 27; UTM Zone 16, 629593 easting and 4426452 northing, NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate medium granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

BE—8 to 11 inches; grayish brown (10YR 5/2) silt loam; moderate thin platy structure; friable; common fine roots; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Bt1—11 to 14 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; strongly acid; clear smooth boundary.

2Bt2—14 to 22 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the

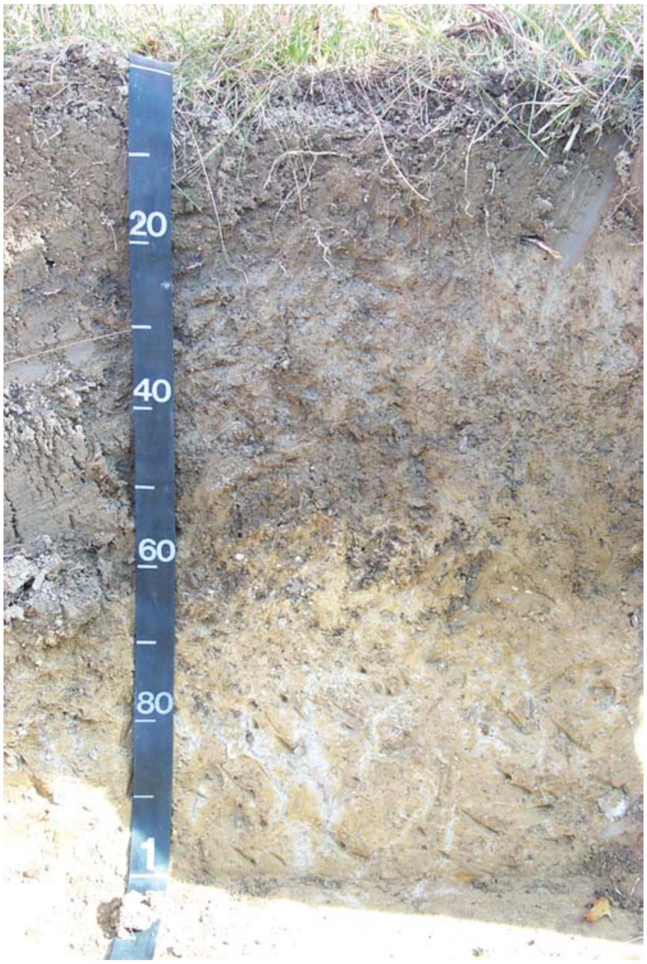

Figure 23.—Profile of Crosby silt loam, 0 to 2 percent slopes.

matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; 2 percent rock fragments; strongly acid; clear smooth boundary.

2Bt3—22 to 28 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; many medium distinct yellowish brown (10YR 5/6) and prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 3 percent rock fragments; neutral; clear smooth boundary.

2BCt—28 to 36 inches; brown (10YR 5/3) loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; common fine distinct yellowish brown (10YR 5/6) and few fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 7 percent rock fragments; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; common fine distinct yellowish brown (10YR 5/6) and few fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 7 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 22 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5; value of 3 only in A horizons
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 5 percent

BE or E horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—2
Texture—silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 5 percent

Bt, Btg, 2Bt, or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam in the upper part; silty clay, clay, silty clay loam, or clay loam in the lower part
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

BCt, CB, 2BCt, or 2CB horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, loam, or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 13 percent

Cd or 2Cd horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline

Content of rock fragments—1 to 13 percent

Cyclone Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Cyclone silty clay loam (fig. 24), on a slope of less than 1 percent in a cultivated field at an elevation of 920 feet above mean sea level; Clinton County, Indiana; about 3 miles east and 3 miles north of Kirklin; 1,750 feet east and 1,800 feet south of the northwest corner of sec. 27, T. 21 N., R. 2 E.; USGS Kirklin, Indiana, topographic quadrangle; lat. 40 degrees 14 minutes 20.5 seconds N. and long. 86 degrees 17 minutes 35 seconds W., NAD 27; UTM Zone 16, 560134 easting and 4454530 northing, NAD 83:

Figure 24.—Profile of Cyclone silty clay loam, 0 to 1 percent slopes.

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; friable; moderately acid; abrupt smooth boundary.

A—9 to 14 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; moderate fine and medium subangular blocky structure; firm; common fine prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary.

Btg1—14 to 20 inches; dark gray (10YR 4/1) silt loam; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; slightly acid; gradual wavy boundary.

Btg2—20 to 38 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; few fine roots; common fine pores; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few black (10YR 2/1) manganese oxide concretions in the matrix; neutral; gradual wavy boundary.

Bt1—38 to 49 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; few distinct dark gray (10YR 4/1) clay films on faces of peds; few black (10YR 2/1) manganese oxide concretions; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; gradual wavy boundary.

2Bt2—49 to 60 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; firm; few distinct gray (10YR 5/1) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent rock fragments; neutral; clear wavy boundary.

2C—60 to 70 inches; yellowish brown (10YR 5/4) loam; massive; firm; many coarse distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess or other silty material: 40 to 60 inches

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the base of the argillic horizon: 50 to 75 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—mainly silty clay loam, but may be silt loam in the lower part
Reaction—moderately acid to neutral

Upper part of the Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 to 3
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

Lower part of the Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

2Bt or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam, clay loam, or silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—1 to 10 percent

2BC or 2BCg horizon, where present:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 10 percent

2C or 2Cg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Eel Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Eel silt loam, on a nearly level slope in a cultivated field at an elevation of 960 feet above mean sea level; Randolph County, Indiana; about 2 miles southwest of Ridgeville; 220 feet south and 540 feet east of the northwest corner of sec. 15, T. 21 N., R. 13 E.; USGS Ridgeville, Indiana, topographic quadrangle; lat. 40 degrees 16 minutes 43 seconds N. and long. 85 degrees 4 minutes 20 seconds W., NAD 27; UTM Zone 16, 663884 easting and 4460492 northing, NAD 83:

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Ap2—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Bw1—10 to 15 inches; brown (10YR 4/3) loam; weak medium and coarse subangular blocky structure; friable; few fine roots; many fine pores; many fine faint brown (10YR 5/3) and few medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly alkaline; clear smooth boundary.

Bw2—15 to 22 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; friable; few fine roots; many fine pores; few fine faint brown (10YR 4/3) masses of iron accumulation in the matrix; few fine faint brown (7.5YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg—22 to 34 inches; dark gray (10YR 4/1) loam; moderate medium subangular blocky structure; friable; few fine and medium pores; thin strata of silty clay loam; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine faint dark brown (7.5YR 3/2) masses of manganese accumulation in the matrix; 1 percent rock fragments; neutral; clear smooth boundary.

BC—34 to 42 inches; pale brown (10YR 6/3) loam; weak medium subangular blocky structure; friable; thin strata of silty clay loam; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; 1 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg—42 to 60 inches; light brownish gray (10YR 6/2) loam; massive; friable; thin strata of silty clay loam and sandy loam; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine faint gray (10YR 5/1) iron

depletions in the matrix; 2 percent rock fragments; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

A horizon, where present:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—silt loam or loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent
Thickness— 2 to 5 inches

Bw and Bg horizons:
Hue—10YR
Value—4 or 5
Chroma—1 to 6
Texture—silt loam, loam, or clay loam with thin strata of silty clay loam or sandy loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

BC or BCg horizon, where present:
Hue—10YR
Value—4 to 6
Chroma—1 to 6
Texture—silt loam, loam, fine sandy loam, or sandy loam with thin strata of silty clay loam or clay loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 7 percent

C or Cg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture—loam, fine sandy loam, or sandy loam with strata of silt loam, silty clay loam, clay loam, loamy sand, loamy fine sand, sand, or fine sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 14 percent

Fincastle Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Fincastle silt loam (fig. 25), on a 1 percent slope in a cultivated field at an elevation of 1,030 feet above mean sea level; Rush County, Indiana; about 4 miles east and 1 mile south of Milroy; 1,750 feet east and 30 feet south of the northwest corner of sec. 23, T. 12 N., R. 10 E.; USGS Milroy, Indiana, topographic quadrangle; lat. 39 degrees 28 minutes 55.7 seconds N. and long. 85 degrees 22 minutes 46 seconds W., NAD 27; UTM Zone 16, 639379 easting and 4371560 northing, NAD 83:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate fine

Figure 25.—Profile of Fincastle silt loam, 0 to 2 percent slopes.

granular structure; friable; many fine and very fine roots; neutral; abrupt smooth boundary.

E—10 to 13 inches; grayish brown (10YR 5/2) silt loam; weak fine subangular blocky structure; friable; common fine and very fine roots; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine and common very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; moderately acid; clear wavy boundary.

Bt2—21 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

2Bt3—27 to 34 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse subangular blocky structure; firm; few fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent rock fragments; neutral; clear wavy boundary.

2Bt4—34 to 50 inches; brown (10YR 5/3) clay loam; weak fine subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent rock fragments; slightly alkaline; abrupt wavy boundary.

2BCt—50 to 59 inches; yellowish brown (10YR 5/4) loam; weak medium and coarse subangular blocky structure; very firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 6 percent rock fragments; strongly effervescent; moderately alkaline; clear wavy boundary.

2Cd—59 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 9 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: 22 to 40 inches
Thickness of the solum: 40 to 60 inches
Depth to carbonates: 35 to 60 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral

E horizon:
Hue—10YR
Value—5 or 6
Chroma—2
Texture—silt loam
Reaction—strongly acid to neutral

Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to slightly acid

2Bt or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—clay loam, loam, or, less commonly, silty clay loam
Reaction—strongly acid to slightly acid in the upper part, ranging to slightly alkaline in the lower part
Content of rock fragments—1 to 7 percent

2BCt or 2BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6

Texture—clay loam or loam
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 8 percent

2Cd horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 14 percent

Fox Series

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for the County

Fox loam, on a 4 percent slope in a cultivated field at an elevation of 810 feet above mean sea level; Boone County, Indiana; about 1.5 miles west of Thorntown; 1,194 feet west and 2,494 feet north of the southeast corner of sec. 33, T. 20 N., R. 2 W.; USGS Colfax, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 3 seconds N. and long. 86 degrees 38 minutes 32.4 seconds W., NAD 27; UTM Zone 16, 530470 easting and 4442713 northing, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many fine roots; 7 percent gravel; strongly acid; clear smooth boundary.

Bt1—8 to 18 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; firm; common fine roots; common tubular pores; many distinct reddish brown (5YR 4/3) clay films on faces of peds; 12 percent gravel; slightly acid; gradual wavy boundary.

Bt2—18 to 25 inches; brown (7.5YR 4/4) sandy loam; weak fine and moderate medium subangular blocky structure; firm; few fine roots; common tubular pores; many distinct dark reddish brown (5YR 3/2) clay films on faces of peds; 14 percent gravel; slightly acid; gradual wavy boundary.

Bt3—25 to 36 inches; dark reddish brown (5YR 3/3) gravelly sandy loam; weak fine and moderate medium subangular blocky structure; firm; few fine roots; common tubular pores; common prominent dark reddish brown (5YR 3/2) clay films on faces of peds; 19 percent gravel; neutral; abrupt irregular boundary.

2C—36 to 80 inches; pale brown (10YR 6/3), stratified gravelly loamy coarse sand; single grain; loose; few fine roots; about 25 percent gravel and 5 percent cobbles; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches
Content of rock fragments: 0 to 35 percent in the loamy mantle and 0 to 95 percent (averaging 3 to 70 percent) in the sandy substratum

Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 or 3
Texture—loam
Reaction—strongly acid to neutral

A horizon, where present:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—loam or sandy loam
Reaction—strongly acid to slightly acid
Thickness— 2 to 5 inches

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—loam, sandy loam, or the gravelly analogs of these textures
Reaction—strongly acid to slightly acid

Bt horizon:
Hue—5YR to 10YR
Value—3 or 4
Chroma—3 or 4
Texture—mainly loam, clay loam, sandy clay loam, or the gravelly analogs of these textures, but sandy loam in the lower part in some pedons
Reaction—strongly acid to neutral in the upper part; moderately acid to slightly alkaline in the lower part

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 7
Chroma—3 or 4
Texture—stratified loamy coarse sand, sand, coarse sand, or the gravelly to extremely gravelly analogs of these textures; strata of gravel in some pedons

Reaction—slightly alkaline or moderately alkaline

Landes Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for the County

Landes fine sandy loam, on a nearly level slope in a cultivated field at an elevation of 815 feet above mean sea level; Boone County, Indiana; about 2 miles northeast of Thorntown; 238 feet west and 2,342 feet north of the southeast corner of sec. 25, T. 20 N., R. 2 W.; USGS Thorntown, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 52 seconds N. and long. 86 degrees 34 minutes 56 seconds W., NAD 27; UTM Zone 16, 535585 easting and 4444251 northing, NAD 83:

Ap—0 to 8 inches; dark brown (10YR 3/3) fine sandy loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; very friable; common fine and medium roots; 3 percent gravel; slightly alkaline; abrupt smooth boundary.

AB—8 to 19 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 1 percent gravel; many faint dark brown (10YR 3/3) organic coatings on faces of peds; slightly alkaline; clear smooth boundary.

Bw—19 to 31 inches; dark yellowish brown (10YR 3/4) loamy fine sand; weak fine and medium subangular blocky structure; friable; common fine and medium roots; common faint dark brown (10YR 3/3) organic coatings on faces of peds; 1 percent gravel; neutral; clear smooth boundary.

CB—31 to 36 inches; brown (10YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; few fine roots; 3 percent gravel; slightly effervescent; neutral; clear smooth boundary.

C—36 to 60 inches; brown (10YR 5/3) sand; single grain; loose; 3 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the cambic horizon: 22 to 40 inches
Depth to carbonates: Less than 40 inches in some pedons
Reaction: Moderately acid to moderately alkaline throughout the profile

Ap, AB, and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—sandy loam or fine sandy loam
Content of rock fragments—0 to 14 percent

Upper part of the Bw horizon:
Hue—10YR
Value—3 to 6
Chroma—3 or 4
Texture—loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand, or loamy very fine sand
Content of rock fragments—0 to 10 percent

Lower part of the Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand, or loamy very fine sand
Content of rock fragments—0 to 10 percent

BC, CB, or C horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—1 to 4
Texture—sand, loamy sand, sandy loam, or the very fine or fine analogs of these textures; also, loam or silt loam
Content of rock fragments—0 to 10 percent

Mahalaland Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Mahalaland silty clay loam, on a level slope in a cultivated field at an elevation of 665 feet above mean sea level; Tippecanoe County, Indiana; about 1 mile south of Lafayette; 2,490 feet west and 2,090 feet north of the southeast corner of sec. 13, T. 19 N., R. 8 W.; USGS Stockwell, Indiana, topographic quadrangle; lat. 40 degrees 21 minutes 7.03 seconds N. and long. 86 degrees 49 minutes 0.04 second W., NAD 27; UTM Zone 16, 515566 easting and 4466843 northing, NAD 83:

Ap—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; firm; common medium roots; slightly acid; abrupt smooth boundary.

A—9 to 13 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak coarse subangular

blocky structure parting to moderate medium subangular blocky; firm; common medium roots; common fine and medium pores; neutral; clear smooth boundary.

Btg1—13 to 18 inches; dark gray (5Y 4/1) silty clay loam; moderate fine subangular blocky structure; firm; common fine roots; common fine pores; many distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; many distinct black (10YR 2/1) organic coatings on faces of peds; common fine distinct olive (5Y 4/4) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Btg2—18 to 26 inches; dark gray (10YR 4/1) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine pores; many prominent dark gray (10YR 4/1) clay films on faces of peds; common fine prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Btg3—26 to 33 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; firm; few fine roots; common fine pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine prominent light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Btg4—33 to 40 inches; grayish brown (2.5Y 5/2) clay loam; weak coarse subangular blocky structure; firm; few fine roots; common fine pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; very dark gray (5Y 3/1) krotovinas; common medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; moderately alkaline; clear smooth boundary.

2Btg5—40 to 46 inches; olive gray (5Y 4/2) sandy clay loam; weak coarse subangular blocky structure; firm; few fine roots; few fine pores; common distinct dark gray (5Y 4/1) clay films on faces of peds; 6 percent rock fragments; slightly effervescent; moderately alkaline; clear smooth boundary.

3Cg1—46 to 53 inches; dark grayish brown (2.5Y 4/2), stratified gravelly loamy sand and sandy loam; single grain; loose; 21 percent rock fragments; strongly effervescent; moderately alkaline; clear smooth boundary.

3Cg2—53 to 80 inches; dark grayish brown (10YR 4/2) gravelly sand; single grain; loose; 33 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess or other silty material: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 21 inches
Thickness of the solum: 40 to 60 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam
Reaction—slightly acid or neutral

Btg horizon:
Hue—either 10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam
Reaction—slightly acid or neutral

2Btg horizon:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, clay loam, or sandy clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 10 percent

2BCg horizon, where present:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, sandy loam, or the gravelly analogs of these textures
Reaction—neutral to moderately alkaline
Content of rock fragments—5 to 20 percent

3Cg horizon:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 3
Texture—mainly stratified gravelly or very gravelly analogs of loamy sand, coarse sand, or sand; thin strata of sandy loam in the upper part in some pedons
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 50 percent

Mahalasville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Mahalasville silty clay loam, on a level slope in a cultivated field at an elevation of 780 feet above mean sea level; Montgomery County, Indiana; about 4 miles north of Crawfordsville; 2,367 feet east and 396 feet north of the southwest corner of sec. 9, T. 19 N., R. 4 W.; USGS Crawfordsville, Indiana, topographic quadrangle; lat. 40 degrees 5 minutes 54.9 seconds N. and long. 86 degrees 52 minutes 34.5 seconds W., NAD 27; UTM Zone 16, 510548 easting and 4438709 northing, NAD 83:

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine granular structure; firm; many fine roots; slightly acid; abrupt smooth boundary.

A—10 to 15 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; moderate fine subangular blocky structure; firm; few medium prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few clean sand grains on faces of peds; slightly acid; clear smooth boundary.

Btg1—15 to 22 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; common fine roots; many fine pores; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few distinct very dark gray (10YR 3/1) organic coatings on surfaces along pores; many medium prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; common clean fine sand grains; neutral; gradual wavy boundary.

Btg2—22 to 33 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; common fine roots; many fine pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; few distinct dark gray (10YR 4/1) organic coatings on surfaces along pores; many medium distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

Btg3—33 to 40 inches; light brownish gray (10YR 6/2) silt loam; moderate medium subangular blocky structure; firm; few distinct dark gray (10YR 4/1) clay films on faces of peds; few black (10YR 2/1) manganese stains on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many sand grains; neutral; abrupt smooth boundary.

2Btg4—40 to 52 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; firm; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 3 percent fine gravel; neutral; clear smooth boundary.

2Cg—52 to 80 inches; gray (10YR 5/1) sandy loam; massive; friable; few thin strata of silt loam and gravelly sand; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess or other silty material: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 21 inches
Thickness of the solum: 40 to 60 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam
Reaction—slightly acid or neutral

Btg horizon:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam
Reaction—slightly acid or neutral

2Btg horizon:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—clay loam, loam, or silt loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

2BCg horizon, where present:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, sandy loam, or silt loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent

2Cg horizon:
Hue—either 10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—mainly stratified sand, sandy loam, silt loam, or loam, but thin strata of the gravelly analogs of these textures in some pedons

Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—average of 0 to 10 percent

Medway Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon for the County

Medway silt loam, on a nearly level slope in a cultivated field at an elevation of 820 feet above mean sea level; Boone County, Indiana; about 2 miles northeast of Thorntown; 480 feet east and 1,650 feet north of the southwest corner of sec. 30, T. 20 N., R. 1 W.; USGS Thorntown, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 45.3 seconds N. and long. 86 degrees 34 minutes 46.5 seconds W., NAD 27; UTM Zone 16, 535810 easting and 4444041 northing, NAD 83:

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to weak medium granular; friable; common fine and medium roots; neutral; abrupt smooth boundary.

A—8 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; friable; common fine and medium roots; many faint very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; clear smooth boundary.

BA—17 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

Bw1—21 to 30 inches; olive brown (2.5Y 4/3) silt loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct dark grayish brown (10YR 4/2) organic coatings in root channels; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bw2—30 to 38 inches; olive brown (2.5Y 4/3) silt loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct very dark gray (10YR 3/1) organic coatings in root channels; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bw3—38 to 46 inches; olive brown (2.5Y 4/3) loam; weak medium subangular blocky structure; friable; few fine roots; common distinct very dark gray (10YR 3/1) coatings in root channels; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bw4—46 to 53 inches; light olive brown (2.5Y 5/3) loam; weak medium subangular blocky structure; friable; few fine roots; common distinct dark grayish brown (10YR 4/2) coatings in root channels; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly alkaline; clear smooth boundary.

Bw5—53 to 56 inches; grayish brown (2.5Y 5/2) loam; weak medium subangular blocky structure; friable; common distinct dark grayish brown (10YR 4/2) coatings in root channels; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly alkaline; clear wavy boundary.

C1—56 to 70 inches; light olive brown (2.5Y 5/3), stratified sandy loam and loam; massive; friable; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—70 to 80 inches; light olive brown (2.5Y 5/4), stratified sandy loam and loam; massive; very friable; 2 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the cambic horizon: 28 to 60 inches
Depth to carbonates: 30 to more than 80 inches

Ap, A, and AB horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3

Texture—silt loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 14 percent

BA, Bw, or Bg horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—loam, silt loam, clay loam, or, less commonly, silty clay loam, sandy loam, fine sandy loam, or sandy clay loam
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

C or Cg horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—1 to 6
Texture—stratified loam, silt loam, sandy loam, silty clay loam, clay loam, or the gravelly analogs of these textures
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 35 percent

Miami Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Miami silt loam (fig. 26), on a 3 percent slope in a cultivated field at an elevation of 880 feet above mean sea level; Hendricks County, Indiana; about 3 miles east of Danville; 800 feet west and 300 feet south of the northeast corner of sec. 6, T. 15 N., R. 1 E.; USGS Brownsburg, Indiana, topographic quadrangle; lat. 39 degrees 46 minutes 31.5 seconds N. and long. 86 degrees 27 minutes 37.2 seconds W., NAD 27; UTM Zone 16, 546217 easting and 4402976 northing, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 1 percent rock fragments; moderately acid; abrupt wavy boundary.

2Bt2—13 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; strong coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 2 percent rock fragments; strongly acid; clear wavy boundary.

Figure 26.—Profile of Miami silt loam, 6 to 12 percent slopes, eroded.

2Bt3—23 to 31 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; common fine and medium rounded very dark gray (10YR 3/1) masses of manganese accumulation in the matrix; 5 percent rock fragments; moderately acid; clear wavy boundary.

2BCt—31 to 36 inches; brown (10YR 4/3) loam; weak coarse prismatic structure; friable; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium irregular very dark gray (10YR 3/1) masses of manganese accumulation in the matrix; common medium faint light brownish gray (10YR 6/2) irregularly shaped iron depletions in the matrix; 5

percent rock fragments; slightly effervescent; slightly alkaline; clear irregular boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; few fine irregular very dark gray (10YR 3/1) masses of manganese accumulation in the matrix; common medium faint grayish brown (10YR 5/2) irregularly shaped iron depletions in the matrix; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 18 inches
Depth to the base of the argillic horizon: 24 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam or clay loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent

Bt and 2Bt horizons:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, silty clay loam, or clay loam
Reaction—strongly acid to slightly acid in the upper part, ranging to neutral in the lower part
Content of rock fragments—1 to 10 percent

2BCt or BCt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 or 4
Texture—loam or, less commonly, fine sandy loam
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 10 percent

2Cd or Cd horizon:
Hue—10YR, 2.5Y, or, less commonly, 7.5YR
Value—5 or 6
Chroma—3 or 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Ockley Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Ockley silt loam, on a 1 percent slope in a cultivated field at an elevation of 1,010 feet above mean sea level; Rush County, Indiana; about 1 mile east of Raleigh; 195 feet north and 1,850 feet east of the southwest corner of sec. 18, T. 15 N., R. 11 E.; USGS Falmouth, Indiana, topographic quadrangle; lat. 39 degrees 44 minutes 40.4 seconds N. and long. 85 degrees 20 minutes 44.2 seconds W., NAD 27; UTM Zone 16, 641750 easting and 4400720 northing, NAD 83:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and very fine roots; 2 percent rock fragments; slightly acid; abrupt smooth boundary.

BA—10 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; 2 percent rock fragments; slightly acid; clear wavy boundary.

Bt1—15 to 18 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; 6 percent rock fragments; slightly acid; clear wavy boundary.

2Bt2—18 to 30 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine and very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 4 percent rock fragments; moderately acid; clear wavy boundary.

2Bt3—30 to 37 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; common prominent dark reddish brown (5YR 3/3) clay films on faces of peds; 8 percent rock fragments; strongly acid; clear wavy boundary.

2Bt4—37 to 49 inches; dark reddish brown (5YR 3/3) gravelly sandy clay loam; weak medium subangular blocky structure; friable; common distinct dark reddish brown (5YR 3/3) clay bridges between sand grains; 26 percent rock fragments; neutral; abrupt irregular boundary.

3C—49 to 80 inches; yellowish brown (10YR 5/4), stratified coarse sand and very gravelly coarse sand; single grain; loose; 50 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 20 inches

Depth to the base of the argillic horizon: 40 to 72 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

BA horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or loam
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam, loam, or silty clay loam
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 10 percent

Upper part of the 2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 10 percent

Lower part of the 2Bt horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—2 to 6
Texture—sandy clay loam, sandy loam, coarse sandy loam, or the gravelly or very gravelly analogs of these textures
Reaction—strongly acid to slightly alkaline
Content of rock fragments—10 to 45 percent

2C or 3C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified gravelly or very gravelly analogs of loamy coarse sand or coarse sand; also, strata of loamy sand, coarse sand, sand, or extremely gravelly sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—30 to 70 percent

Rainsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Rainsville silt loam, on a 4 percent slope in a cultivated field at an elevation of 690 feet above mean sea level; Warren County, Indiana; about 2 miles north and 1 1/2 miles east of West Lebanon; 400 feet west and 1,280 feet south of the northeast corner of sec. 6, T. 21 N., R. 8 W.; USGS Williamsport, Indiana, topographic quadrangle; lat. 40 degrees 17 minutes 53.5 seconds N. and long. 87 degrees 21 minutes 29.3 seconds W., NAD 27; UTM Zone 16, 469562 easting and 4460919 northing, NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; mixing of dark yellowish brown (10YR 4/4) silt loam subsoil material; moderate fine subangular blocky structure parting to moderate fine granular; friable; common fine and very fine roots; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; common dark grayish brown (10YR 4/2) organic coatings on surfaces along pores; slightly acid; clear wavy boundary.

2Bt2—13 to 21 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few dark grayish brown (10YR 4/2) organic coatings on surfaces along pores; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt3—21 to 30 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds and on surfaces along pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; gradual wavy boundary.

2Bt4—30 to 42 inches; strong brown (7.5YR 4/6) loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds and on surfaces along pores; common medium faint yellowish brown (10YR 5/6) masses of iron

accumulation in the matrix; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 8 percent rock fragments; strongly acid; abrupt irregular boundary.

3Bt5—42 to 48 inches; olive brown (2.5Y 4/4) loam; moderate coarse subangular blocky structure; firm; common distinct dark brown (10YR 3/3) clay films on faces of peds and on surfaces along pores; few fine distinct brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 4 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

3Cd—48 to 60 inches; light olive brown (2.5Y 5/4) loam; massive; firm; common fine faint light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; 9 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 20 inches
Depth to the base of the argillic horizon: 45 to 60 inches
Depth to the 3Bt horizon (till): 40 to 50 inches

Ap or A horizon:
Hue—10YR
Value—4
Chroma—2 to 4
Texture—silt loam
Reaction—moderately acid to neutral

Bt horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

2Bt horizon:
Hue—10YR in the upper part; 7.5YR in the lower part
Value—4 to 6 in the upper part; 4 or 5 in the lower part
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—very strongly acid to moderately acid
Content of rock fragments—1 to 5 percent in the upper part; 5 to 14 percent in the next part; 8 to 14 percent gravel in the 2B subhorizon directly above the 3B horizon

3Bt horizon:
Hue—2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam
Reaction—neutral or slightly alkaline
Content of rock fragments—2 to 10 percent

3Cd or 3C horizon:
Hue—2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Rodman Series

Taxonomic classification: Sandy-skeletal, mixed, mesic Typic Hapludolls

Typical Pedon for the Series

Rodman sandy loam, on a 45 percent slope in a forested area at an elevation of 560 feet above mean sea level; Fountain County, Indiana; about 1 mile south and 1 mile west of Attica; 80 feet north and 200 feet east of the southwest corner of sec. 13, T. 21 N., R. 8 W.; USGS Williamsport, Indiana, topographic quadrangle; lat. 40 degrees 15 minutes 29.7 seconds N. and long. 87 degrees 16 minutes 49.3 seconds W., NAD 27; UTM Zone 16, 476158 easting and 4456462 northing, NAD 83:

A—0 to 10 inches; black (10YR 2/1) sandy loam, very dark gray (10YR 3/1) dry; moderate fine granular structure; very friable; many fine and medium roots; 14 percent rock fragments; neutral; abrupt smooth boundary.

Bw—10 to 18 inches; brown (7.5YR 4/3) very gravelly coarse sandy loam; weak medium granular structure; very friable; common fine and medium roots; 35 percent rock fragments; slightly alkaline; abrupt smooth boundary.

C—18 to 80 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand; single grain; loose; 50 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 10 to 20 inches
Depth to carbonates: 10 to 20 inches

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam
Reaction—neutral or slightly alkaline
Content of rock fragments—10 to 14 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—1 to 3
Texture—loam, sandy loam, coarse sandy loam, or the gravelly or very gravelly analogs of these textures
Reaction—neutral or slightly alkaline
Content of rock fragments—10 to 40 percent

C horizon:
Hue—10YR
Value—3 to 6
Chroma—1 to 4
Texture—the very gravelly or extremely gravelly analogs of loamy coarse sand or sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—35 to 78 percent

Rossburg Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for the County

Rossburg silt loam, on a slope of less than 1 percent in a cultivated field at an elevation of 820 feet above mean sea level; Boone County, Indiana; about 1.8 miles northeast of Thorntown; 1,382 feet west and 2,558 feet north of the southeast corner of sec. 25, T. 20 N., R. 2 W.; USGS Thorntown, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 54.5 seconds N. and long. 86 degrees 35 minutes 10.4 seconds W., NAD 27; UTM Zone 16, 535243 easting and 4444320 northing, NAD 83:

Ap—0 to 11 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; friable; few fine roots; neutral; abrupt smooth boundary.

Bw1—11 to 20 inches; dark brown (10YR 3/3) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few distinct very dark gray (10YR 3/1) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bw2—20 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; abrupt smooth boundary.

Bw3—31 to 37 inches; dark yellowish brown (10YR 4/4) sandy clay loam; weak medium subangular blocky structure; firm; few fine roots; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bw4—37 to 44 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; few distinct very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; clear smooth boundary.

C1—44 to 61 inches; dark yellowish brown (10YR 4/4) loamy sand; massive; very friable; slightly effervescent; neutral; clear wavy boundary.

C2—61 to 70 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand; single grain; loose; 40 percent fine and medium gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the cambic horizon: 24 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam, silty clay loam, clay loam, or sandy clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 10 percent

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—mainly loam, silt loam, sandy loam, or the gravelly analogs of these textures; strata of sand, loamy coarse sand, loamy sand, or the

gravelly or very gravelly analogs of these textures in some pedons
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 20 percent above a depth of 48 inches; below a depth of 48 inches, 0 to 35 percent, ranging to 50 percent in individual strata in some pedons

Senachwine Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the County

Senachwine silt loam, on an 18 percent slope in a pasture at an elevation of 915 feet above mean sea level; Boone County, Indiana; about 3.4 miles southwest of Zionsville; 2,125 feet west and 63 feet south of the northeast corner of sec. 8, T. 17 N., R. 2 E.; USGS Zionsville, Indiana, topographic quadrangle; lat. 39 degrees 56 minutes 18.2 seconds N. and long. 86 degrees 19 minutes 27.3 seconds W., NAD 27; UTM Zone 16, 557733 easting and 4421141 northing, NAD 83:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine and medium roots; 2 percent rock fragments; neutral; abrupt smooth boundary.
Bt1—5 to 18 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 2 percent rock fragments; moderately acid; clear smooth boundary.
Bt2—18 to 28 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 2 percent rock fragments; neutral; clear smooth boundary.
BCt—28 to 36 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 4 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.
Cd—36 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 8 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 24 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 3 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or clay loam
Reaction—mainly strongly acid to slightly acid, but ranging to neutral in the lower part
Content of rock fragments—1 to 10 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or loam
Reaction—neutral or slightly alkaline
Content of rock fragments—1 to 10 percent

Cd horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Shoals Series

Taxonomic classification: Fine-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon for MLRA 111

Shoals silt loam, on a nearly level slope in a pasture at an elevation of 750 feet above mean sea level; Montgomery County, Indiana; about 1 mile north of Waveland; 530 feet south and 100 feet east of the northwest corner of sec. 25, T. 17 N., R. 6 W.; USGS Alamo, Indiana, topographic quadrangle; lat. 39 degrees 53 minutes 40 seconds N. and long. 87 degrees 3 minutes 11.7 seconds W., NAD 27; UTM Zone 16, 495447 easting and 4416048 northing, NAD 83:

A—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; friable; few roots; slightly alkaline; clear wavy boundary.

Bg1—8 to 20 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; few roots; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; many fine faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; diffuse smooth boundary.

Bg2—20 to 33 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; few roots; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; many fine faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; diffuse smooth boundary.

Cg1—33 to 46 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; thin strata of loam; common medium distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; common dark reddish brown (5YR 3/3) masses of manganese accumulation throughout; common medium faint olive gray (5Y 5/2) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg2—46 to 60 inches; gray (10YR 5/1), stratified loam, silt loam, sandy loam, and sand; massive; friable; common medium faint dark grayish brown (2.5Y 4/2) iron depletions in the matrix; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 60 inches

A or Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 3 percent

Bg or Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, silt loam, or, less commonly, clay loam or sandy clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 3 percent

Cg or C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—stratified loam, silt loam, clay loam, fine sandy loam, or sandy loam with thin strata of loamy sand or sand
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 14 percent

Sleeth Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for the County

Sleeth silt loam, on a nearly level slope in a cultivated field at an elevation of 835 feet above mean sea level; Boone County, Indiana; about 1.4 miles northeast of Thorntown; 2,383 feet west and 48 feet north of the southeast corner of sec. 25, T. 20 N., R. 2 W.; USGS Thorntown, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 29.6 seconds N. and long. 86 degrees 35 minutes 23.7 seconds W., NAD 27; UTM Zone 16, 534933 easting and 4443553 northing, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; few fine roots; 4 percent gravel; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium subangular blocky structure; firm; many faint grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few distinct black (10YR 2/1) masses of manganese accumulation in the matrix; few medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; 4 percent gravel; slightly acid; clear smooth boundary.

Bt2—13 to 19 inches; olive brown (2.5Y 4/3) silty clay loam; moderate medium subangular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few distinct black (10YR 2/1) masses of manganese accumulation in the matrix; few medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; 4 percent gravel; slightly acid; clear smooth boundary.

2Bt3—19 to 28 inches; olive brown (2.5Y 4/3) gravelly clay loam; moderate medium subangular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct light olive brown (2.5Y 5/6)

masses of iron accumulation in the matrix; common distinct black (10YR 2/1) masses of manganese accumulation in the matrix; few medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; 15 percent gravel; slightly acid; clear smooth boundary.

2Bt4—28 to 36 inches; brown (10YR 4/3) sandy clay loam; weak and moderate medium subangular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 3 percent gravel; slightly acid; abrupt smooth boundary.

2Bt5—36 to 43 inches; brown (10YR 4/3) gravelly sandy clay loam; moderate medium subangular blocky structure; firm; common distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 15 percent gravel; slightly acid; abrupt wavy boundary.

3C1—43 to 48 inches; brown (10YR 5/3) gravelly loamy coarse sand; single grain; loose; 15 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3C2—48 to 80 inches; yellowish brown (10YR 5/4) gravelly sand; single grain; loose; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess or other silty material: Less than 20 inches

Depth to the base of the argillic horizon: 40 to 60 inches

Ap, A, and E horizons:

Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

BE horizon or the upper part of Bt or Btg horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—clay loam, loam, sandy clay loam, or, less commonly, silt loam or silty clay loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

Lower part of Bt or Btg horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—the gravelly analog of sandy clay loam, loam, clay loam, sandy loam, or, less commonly, loamy sand
Reaction—moderately acid to slightly alkaline
Content of rock fragments—mainly 15 to 30 percent gravel and 0 to 3 percent cobbles; less than 15 percent gravel in thin subhorizons in some pedons

3C or 3Cg horizon:

Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 to 4
Texture—mainly the gravelly or very gravelly analogs of loamy coarse sand, coarse sand, or sand; strata of sand in some pedons
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—10 to 55 percent gravel and 0 to 5 percent cobbles

Sloan Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for the Series

Sloan silty clay loam, on a slope of less than 1 percent in a cultivated field at an elevation of 900 feet above mean sea level; Mercer County, Ohio; Recovery Township; about 2$^{1}/_{2}$ miles north of Fort Recovery; 2,600 feet south and 1,980 feet west of the intersection of State Route 49 and Siegrist-Jutte Road; SW$^{1}/_{4}$ NE$^{1}/_{4}$ sec. 6, T. 7 S., R. 1 E.; USGS Fort Recovery, Indiana-Ohio topographic quadrangle; lat. 40 degrees 27 minutes 28.8 seconds N. and long. 84 degrees 47 minutes 28 seconds W., NAD 27; UTM Zone 16, 687296 easting and 4481158 northing, NAD 83:

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam, very dark grayish brown (10YR 3/2) rubbed, gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; friable; many fine roots; neutral; abrupt smooth boundary.

A—9 to 15 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate medium angular blocky structure; friable; many fine roots; few medium distinct dark yellowish brown (10YR 3/4) masses of iron accumulation throughout; neutral; gradual wavy boundary.

Bg1—15 to 21 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common medium distinct

dark yellowish brown (10YR 4/4) masses of iron accumulation throughout; few dark iron and manganese concretions throughout; neutral; gradual wavy boundary.

Bg2—21 to 34 inches; gray (10YR 5/1) and dark gray (10YR 4/1) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; many medium prominent brown (7.5YR 4/4) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation throughout; few distinct black manganese concretions throughout; neutral; clear smooth boundary.

BCg—34 to 45 inches; gray (10YR 5/1) clay loam; massive; friable; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation throughout; slightly alkaline; gradual wavy boundary.

Cg—45 to 60 inches; gray (10YR 5/1), stratified loam, silt loam, silty clay loam, and sandy loam; massive; friable; many coarse distinct yellowish brown (10YR 5/4) and prominent yellowish brown (10YR 5/6) masses of iron accumulation throughout; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the solum: 20 to 60 inches
Depth to carbonates: 22 to more than 80 inches

Ap and A horizons:
Hue—10YR, 2.5Y, or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—silty clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—either 10YR to 5Y or neutral
Value—3 to 5
Chroma—0 to 2
Texture—silty clay loam, clay loam, silt loam, or loam
Reaction—slightly acid to slightly alkaline in the upper part, ranging to moderately alkaline in the lower part
Content of rock fragments—0 to 5 percent

BCg or BC horizon:
Hue—either 10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 4
Texture—silty clay loam, clay loam, silt loam, loam, or the gravelly analogs of these textures
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 35 percent

Cg or C horizon:
Hue—10YR to 5Y
Value—3 to 6
Chroma—1 to 4
Texture—stratified silty clay loam, clay loam, sandy loam, loam, silt loam, or the gravelly analogs of these textures
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 35 percent

Southwest Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon for the Series

Southwest silt loam, on a 1 percent slope in a cultivated field at an elevation of 820 feet above mean sea level; Elkhart County, Indiana; about 3 miles north and 2 miles east of the town of Wakarusa; 129 feet west and 1,167 feet south of the northeast corner of sec. 8, T. 36 N., R. 5 E.; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 28 seconds N. and long. 85 degrees 57 minutes 53 seconds W., NAD 27; UTM Zone 16, 586286 easting and 4604903 northing, NAD 83:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots throughout; moderately acid; clear wavy boundary.

Bg1—10 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; many fine and medium interstitial and tubular pores with moderate continuity; common medium faint brown (10YR 4/3) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Bg2—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium interstitial and tubular pores with moderate continuity; common medium faint brown (10YR 4/3) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

2Ab—23 to 34 inches; black (10YR 2/1) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; neutral; clear wavy boundary.

2Bgb—34 to 45 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; many medium distinct brown

(10YR 5/3) and common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

3Ab1—45 to 55 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; neutral; gradual wavy boundary.

3Ab2—55 to 75 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak thick platy structure; friable; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; neutral; gradual wavy boundary.

3Cg—75 to 80 inches; dark gray (5Y 4/1) silt loam; massive; friable; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the overwash and depth to a buried soil: Typically 20 to 40 inches, but ranging from 10 to 20 inches in Boone County

Depth to carbonates: 40 to more than 80 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—2 or 3
Texture—silt loam
Reaction—moderately acid to neutral

Bg horizon:
Hue—10YR
Value—4 or 5
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

2Ab, 2Bgb, and 3Ab horizons:
Hue—10YR or 2.5Y
Value—2 to 6
Chroma—1 or 2
Texture—silty clay loam, silt loam, clay loam, or loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

3Cg or 3C horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 to 4
Texture—loam, silt loam, or clay loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 5 percent

Starks Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for MLRA 111

Starks silt loam, on a nearly level slope in a cultivated field at an elevation of 670 feet above mean sea level; Tippecanoe County, Indiana; about 1.5 miles northwest of Pettit; 910 feet east and 900 feet north of the southwest corner of sec. 14, T. 23 N., R. 3 W.; USGS Pyrmont, Indiana, topographic quadrangle; lat. 40 degrees 26 minutes 4.7 seconds N. and long. 86 degrees 43 minutes 46.1 seconds W., NAD 27; UTM Zone 16, 522946 easting and 4476039 northing, NAD 83:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; common fine roots; strongly acid; abrupt wavy boundary.

Bt1—10 to 20 inches; brown (10YR 5/3) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common fine roots; common fine pores; many faint grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; strongly acid; clear smooth boundary.

Bt2—20 to 27 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine pores; common faint grayish brown (10YR 5/2) clay films on faces of peds; few dark grayish brown (10YR 4/2) clay films as linings in pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bt3—27 to 33 inches; yellowish brown (10YR 5/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bt4—33 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure

parting to weak medium subangular blocky; firm; common fine roots; common fine pores; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

2Bt5—38 to 46 inches; yellowish brown (10YR 5/4), stratified silt loam, loam, and sandy loam; weak coarse subangular blocky structure; firm; few fine roots; common fine pores; few distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 3 percent fine gravel; neutral; clear wavy boundary.

2Bt6—46 to 56 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

2C—56 to 70 inches; yellowish brown (10YR 5/4) sandy loam; massive; firm; thin strata of loamy sand and silt loam; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 12 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: 24 to 40 inches
Depth to the base of the argillic horizon: 35 inches to more than 60 inches
Depth to carbonates: 40 to 70 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Texture—silt loam
Reaction—strongly acid to neutral

Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Reaction—strongly acid to slightly acid

2Bt or 2Btg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay loam, silt loam, or sandy loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

2C or 2Cg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—mainly stratified sandy loam, loam, silt loam, or sandy clay loam; thin strata of loamy sand in some pedons
Reaction—strongly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Strawn Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the County

Strawn loam, on a 20 percent slope in a wooded area at an elevation of 875 feet above mean sea level; Boone County, Indiana; about one-fourth mile southwest of Zionsville; 2,197 feet east and 845 feet north of the southwest corner of sec. 2, T. 17 N., R. 2 E.; USGS Zionsville, Indiana, topographic quadrangle; lat. 39 degrees 56 minutes 30.1 seconds N. and long. 86 degrees 16 minutes 16 seconds W., NAD 27; UTM Zone 16, 562271 easting and 4421544 northing, NAD 83:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; friable; common fine roots; 3 percent rock fragments; neutral; abrupt smooth boundary.

AB—5 to 9 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; firm; common fine roots; many distinct dark brown (10YR 3/3) organic coatings on faces of peds; 3 percent rock fragments; neutral; clear smooth boundary.

Bt1—9 to 11 inches; brown (10YR 4/3) loam; moderate fine subangular blocky structure; firm; few fine roots; common faint brown (10YR 4/3) clay films on faces of peds; 3 percent rock fragments; neutral; clear smooth boundary.

Bt2—11 to 22 inches; brown (10YR 4/3) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; 5 percent rock fragments; neutral; clear smooth boundary.

C—22 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 16 to 24 inches
Depth to carbonates: 14 to 24 inches

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 7 percent

AB or E horizon, where present:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 7 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, silty clay loam, or loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—3 to 14 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—2 to 6
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 14 percent

Treaty Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Treaty silty clay loam, on a slope of less than 1 percent in a cultivated field at an elevation of 815 feet above mean sea level; Montgomery County, Indiana; about 2$^{3}/_{4}$ miles west of Cherry Grove; 700 feet east and 1,950 feet north of the southwest corner of sec. 35, T. 20 N., R. 5 W.; USGS Linden, Indiana, topographic quadrangle; lat. 40 degrees 7 minutes 54.8 seconds N. and long. 86 degrees 57 minutes 31 seconds W., NAD 27; UTM Zone 16, 503526 easting and 4442399 northing, NAD 83:

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
A—10 to 14 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure parting to weak fine granular; firm; slightly acid; clear smooth boundary.
Btg1—14 to 22 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; many distinct olive gray (5Y 5/2) clay films on faces of peds and as linings of pores; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; neutral; clear wavy boundary.
Btg2—22 to 36 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine pores; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds and as linings of pores; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; few black (10YR 2/1) manganese oxide concretions; neutral; clear wavy boundary.
2Btg3—36 to 59 inches; gray (10YR 5/1) loam; weak medium subangular blocky structure; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; neutral; clear wavy boundary.
2C—59 to 70 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct gray (10YR 5/1) iron depletions in the matrix; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 18 inches
Depth to the base of the argillic horizon: 40 to 65 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2

Texture—silty clay loam
Reaction—moderately acid to neutral

Btg horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—slightly acid to slightly alkaline

2Btg or 2Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—loam, clay loam, or silty clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—2 to 10 percent

2Cg or 2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Wawaka Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the County

Wawaka silt loam, on a slope of less than 1 percent in a cultivated field at an elevation of 820 feet above mean sea level; Boone County, Indiana; about 2 miles northwest of Thorntown; 70 feet east and 1,580 feet north of the southwest corner of sec. 27, T. 20 N., R. 2 W.; USGS Colfax, Indiana, topographic quadrangle; lat. 40 degrees 8 minutes 46.4 seconds N. and long. 86 degrees 38 minutes 15.9 seconds W., NAD 27; UTM Zone 16, 530856 easting and 4444052 northing, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to weak fine and very fine granular; friable; common very fine roots; neutral; abrupt smooth boundary.

Bt1—7 to 14 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; friable; common very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—14 to 19 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; slightly acid; clear smooth boundary.

2Bt3—19 to 32 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 3 percent fine gravel; moderately acid; clear smooth boundary.

2Bt4—32 to 43 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium and coarse subangular blocky structure; firm; few very fine roots; many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; 5 percent fine gravel; moderately acid; clear smooth boundary.

2Bt5—43 to 51 inches; brown (10YR 4/3) sandy clay loam; moderate medium and coarse subangular blocky structure; firm; common distinct dark yellowish brown (10 YR 4/4) clay films on faces of peds; 5 percent fine and medium gravel; slightly acid; abrupt wavy boundary.

2Bt6—51 to 58 inches; brown (10YR 5/3) sandy clay loam; weak medium and coarse subangular blocky structure; firm; few distinct brown (10YR 4/3) clay films on faces of peds; 5 percent fine and medium gravel; moderately alkaline; abrupt wavy boundary.

2C1—58 to 94 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 5 percent fine and medium gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3C2—94 to 106 inches; yellowish brown (10YR 5/6) loamy fine sand; single grain; loose; 8 percent fine and medium gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3C3—106 to 118 inches; brown (10YR 4/3) very gravelly loamy coarse sand; single grain; loose; 35 percent fine and medium gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 20 inches
Depth to the base of the argillic horizon: 30 to 60 inches
Depth to carbonates: 30 to 60 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4

Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 3 percent

Bt and 2Bt horizons:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or clay loam in the upper part; loam, clay loam, or sandy clay loam in the lower part
Reaction—strongly acid to moderately alkaline
Content of rock fragments—0 to 10 percent

2C or 2CB horizon:
Hue—10YR
Value—5
Chroma—3 or 4
Texture—loam or gravelly loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—8 to 20 percent

3C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sand, sand, coarse sand, loamy fine sand, loamy coarse sand, coarse sandy loam, or the gravelly to extremely gravelly analogs of these textures
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 65 percent

Waynetown Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Waynetown silt loam, on a 1 percent slope in a cultivated field at an elevation of 750 feet above mean sea level; Montgomery County, Indiana; about 2 miles north of Crawfordsville; 2,376 feet north and 924 feet east of the southwest corner of sec. 18, T. 19 N., R. 4 W.; USGS Crawfordsville, Indiana, topographic quadrangle; lat. 40 degrees 5 minutes 2 seconds N. and long. 86 degrees 54 minutes 38.5 seconds W., NAD 27; UTM Zone 16, 507613 easting and 4437075 northing, NAD 83:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

E—10 to 15 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine pores; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few distinct pale brown (10YR 6/3) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Bt—15 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine roots; common fine pores; common distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; few distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; few clean sand grains; moderately acid; clear smooth boundary.

Btg1—21 to 32 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; few fine pores; common distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; few clean sand grains; moderately acid; clear wavy boundary.

2Btg2—32 to 45 inches; grayish brown (10YR 5/2) loam; moderate medium and coarse subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 1 percent gravel; moderately acid; clear wavy boundary.

3Btg3—45 to 57 inches; gray (10YR 5/1) gravelly sandy clay loam; moderate coarse subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; 16 percent gravel; slightly acid; clear wavy boundary.

3Btg4—57 to 75 inches; dark gray (N 4/0) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; common distinct very dark gray (N 3/0) clay films on faces of peds; few medium prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 17 percent gravel;

slightly effervescent in the lower 5 inches; neutral; gradual wavy boundary.

3Cg—75 to 80 inches; gray (10YR 5/1) gravelly coarse sand; single grain; loose; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: 20 to 40 inches
Depth to base of the argillic horizon: 50 to 80 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2
Texture—silt loam
Reaction—strongly acid to neutral

Bt and Btg horizons:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Texture—silty clay loam
Reaction—moderately acid or slightly acid

2Btg or 2Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 4
Texture—clay loam or loam
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent

3Btg or 3Bt horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 or 5
Chroma—0 to 4
Texture—the gravelly analog of clay loam, sandy clay loam, or loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—15 to 30 percent

3Cg horizon:
Hue—10YR
Value—4 or 5
Chroma—1 or 2
Texture—gravelly loamy coarse sand or gravelly coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 30 percent

Westland Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Westland silty clay loam, on a level slope in a cultivated field at an elevation of 1,055 feet above mean sea level; Wayne County, Indiana; about 2 miles west of Richmond; 250 feet north and 1,730 feet east of the southwest corner of sec. 1, T. 13 N., R. 1 W.; USGS New Paris, Indiana, topographic quadrangle; lat. 39 degrees 48 minutes 53.4 seconds N. and long. 84 degrees 49 minutes 37.6 seconds W., NAD 27; UTM Zone 16, 685985 easting 4409464 northing, NAD 83:

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common medium roots; 2 percent gravel; slightly acid; abrupt smooth boundary.

BA—10 to 16 inches; dark gray (10YR 4/1) silty clay loam; moderate fine subangular blocky structure; firm; common medium roots; 5 percent gravel; neutral; clear wavy boundary.

Btg1—16 to 21 inches; dark gray (10YR 4/1) silty clay loam; moderate medium subangular blocky structure; firm; common medium roots; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; 5 percent gravel; neutral; clear wavy boundary.

2Btg2—21 to 29 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; few medium roots; common distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; 10 percent gravel; neutral; clear wavy boundary.

2Btg3—29 to 37 inches; olive gray (5Y 5/2) clay loam; strong medium subangular blocky structure; firm; few fine roots; common distinct gray (10YR 5/1) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine distinct dark gray (10YR 4/1) iron depletions in the matrix; 10 percent gravel; neutral; clear wavy boundary.

2BCg—37 to 47 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; few fine roots; common fine faint gray (10YR 6/1) iron depletions in the matrix; 10 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

3Cg—47 to 60 inches; light brownish gray (10YR 6/2) very gravelly coarse sand; single grain; loose; 40

percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess or other silty material: Less than 20 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the argillic horizon: 30 to 55 inches
Thickness of the solum: 40 to 60 inches

Ap or A horizon:
Hue—10YR, 2.5Y, or neutral
Value—2, 2.5, or 3
Chroma—0 to 3
Texture—silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent gravel

BA horizon, where present:
Hue—10YR, 2.5Y, or neutral
Value—3 to 5
Chroma—0 to 2
Texture—clay loam or silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent gravel

Upper part of the Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—clay loam or silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent gravel

Lower part of the Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—loam, clay loam, sandy clay loam, or the gravelly analogs of these textures
Reaction—slightly acid or neutral
Content of rock fragments—1 to 15 percent gravel

2Btg horizon:
Hue—either 10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 2
Texture—loam, clay loam, sandy clay loam, or the gravelly or very gravelly analogs of these textures
Reaction—slightly acid or neutral
Content of rock fragments—5 to 40 percent gravel and 0 to 5 percent cobbles

BCg or 2BCg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, clay loam, sandy loam, sandy clay loam, or the gravelly or very gravelly analogs of these textures
Reaction—neutral or slightly alkaline
Content of rock fragments—5 to 40 percent gravel and 0 to 5 percent cobbles

2Cg, 2C, 3Cg, or 3C horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 7
Chroma—0 to 4
Texture—either stratified gravelly or very gravelly analogs of coarse sand or loamy coarse sand or strata of loamy sand, coarse sand, sand, or extremely gravelly sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—20 to 50 percent gravel and 0 to 12 percent cobbles

Whitaker Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for the County

Whitaker silt loam, on a slope of less than 1 percent in a cultivated field at an elevation of 950 feet above mean sea level; Boone County, Indiana; about 2.5 miles southeast of Lebanon; 2,072 feet east and 1,264 feet north of the southwest corner of sec. 4, T. 18 N., R. 1 E.; USGS Lebanon, Indiana, topographic quadrangle; lat. 40 degrees 01 minute 49.5 seconds N. and long. 86 degrees 25 minutes 28 seconds W., NAD 27; UTM Zone 16, 549099 easting and 4431300 northing, NAD 83:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light yellowish brown (2.5Y 6/3) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common fine roots; 1 percent fine gravel; moderately acid; abrupt smooth boundary.
Btg—10 to 20 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; 2 percent fine gravel; moderately acid; clear smooth boundary.
2Bt1—20 to 31 inches; brown (10YR 4/3) sandy clay loam; moderate medium subangular blocky

structure; firm; common fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 4 percent fine gravel; moderately acid; clear smooth boundary.

2Bt2—31 to 37 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; friable; few fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 2 percent fine gravel; slightly acid; clear smooth boundary.

2BCtg—37 to 48 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure; friable; few fine roots; many distinct dark gray (10YR 4/1) clay films in root channels; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly effervescent; neutral; clear smooth boundary.

2Cg—48 to 68 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline; clear smooth boundary.

2C—68 to 80 inches; yellowish brown (10YR 5/4) loam; massive; friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the silty material: Less than 20 inches
Depth to the base of the argillic horizon: 32 to 60 inches

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent

E horizon, where present:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—loam, fine sandy loam, sandy loam, or, less commonly, silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent

Btg or 2Btg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam, clay loam, sandy clay loam, loam, or sandy loam
Reaction—strongly acid or moderately acid in the upper part; moderately acid to neutral in the lower part
Content of rock fragments—0 to 5 percent

BC, BCg, 2BC, or 2BCg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam, loam, or sandy loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—0 to 5 percent

C, Cg, 2C, or 2Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—stratified loam, silt loam, sandy loam, fine sandy loam, or very fine sandy loam with thin strata of coarse sandy loam, loamy coarse sand, loamy fine sand, loamy sand, coarse sand, sand, or find sand
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Williamstown Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Hapludalfs

Typical Pedon for the Series

Williamstown silt loam, on a 4 percent slope in a cultivated field at an elevation of 835 feet above mean sea level; Decatur County, Indiana; about 2.5 miles north and 1 mile west of Westport; 1,030 feet west and 2,080 feet north of the southeast corner of sec. 23, T. 9 N., R. 8 E.; USGS Westport, Indiana, topographic quadrangle; lat. 39 degrees 12 minutes 36.9 seconds N. and long. 85 degrees 35 minutes 52.7 seconds W., NAD 27; UTM Zone 16, 621048 easting and 4341051 northing, NAD 83:

Ap—0 to 9 inches; 90 percent brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry, and 10 percent yellowish brown (10YR 5/4) clay loam subsoil material; moderate medium granular structure; friable; strongly acid; abrupt smooth boundary.

2Bt1—9 to 18 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 1 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt2—18 to 33 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) manganese oxide concretions; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent rock fragments; neutral; clear wavy boundary.

2BCt—33 to 37 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 1 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cd—37 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; common fine distinct gray (10YR 6/1) iron depletions in the matrix; 1 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the loess: Less than 22 inches

Depth to the base of the argillic horizon: 20 to 40 inches

Depth to carbonates: 20 to 40 inches

Ap horizon:

Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

2Bt or Bt horizon:

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or clay loam
Reaction—very strongly acid to neutral
Content of rock fragments—0 to 10 percent

2BCt or BCt horizon:

Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam or, less commonly, fine sandy loam
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 10 percent

2Cd or Cd horizon:

Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—loam or, less commonly, fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Formation of the Soils

This section explains the major factors that have affected soil formation in Boone County. It also explains the processes of soil formation.

Factors of Soil Formation

Soils form through processes acting on deposits of plant and geologic material. The characteristics of a soil at any given point are determined by the total amount of time that the soil-forming factors have acted on the parent material; the physical and mineralogical composition of the parent material; topography, or the general configuration of the land surface; climate, or the temperature and moisture conditions under which the soil formed; and living organisms, or the plant and animal life on and in the soil (Jenny, 1941).

Parent material greatly affects the development of the soil. Climate and organisms are active factors of soil formation. Through the process of weathering, they act on the parent material and slowly change it into a natural body with genetically related horizons. The effects of climate and living organisms are conditioned by the topography of the area. Finally, time is needed for the transformation of the parent material into a soil that exhibits horizonation.

The factors of soil formation are so closely interrelated in their effects on the soil and each other that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four.

Time

Time is needed for the formation of soil profile characteristics in the parent material. Differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile. The soils in Boone County range from immature to mature. An immature soil is characterized by little of no horizon differentiation. A mature soil is one that has formed A and B horizons.

The profiles of soils on first bottoms are immature because the parent material is young and new material is deposited periodically. Soils on steep slopes, such as Strawn soils, generally are immature because geologic erosion removes the soil material nearly as fast as it accumulates. Some kinds of parent rock are so resistant to weathering that soil formation is very slow even though other conditions are favorable.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It influences the textural, chemical, and mineralogical composition of the soil. The soils in Boone County formed in a variety of parent materials. The unconsolidated surficial materials generally range from 50 to more than 400 feet in thickness (Wayne, 1956). The dominant parent materials in the county are loess, till, outwash, and lacustrine material of Wisconsinan age.

Boone County was greatly affected by the last three ice ages: the pre-Illinoian, Illinoian, and Wisconsinan. The pre-Illinoian ice sheets buried or eroded away the preglacial bedrock topography. The Illinoian ice sheet buried or eroded any of the soils that formed during the Yarmouth interglacial period and added to the depth of the sediments burying the preglacial topography. The Wisconsinan ice sheets covered the entire county again and repeated many of the same erosional and depositional processes of the earlier ice sheets. The soils that formed during the Sangamon interglacial period were buried or were eroded and incorporated into the sediments left behind by the Wisconsinan ice sheet. The sediments occur as till, outwash, lacustrine material, and loess. The physical and chemical structure of these sediments greatly influenced soil formation throughout the county. The county would look very similar to many of the counties in the unglaciated portion of southern Indiana if it had not been buried during periods of glacial activity (Hall, 1989).

Very little bedrock is exposed in Boone County, and most of the information about the bedrock in the county is obtained from records of well drilling (Thompson, 1886). A few minor exposures of bedrock are along Sugar Creek, near the Montgomery County line, on the western edge of Boone County. The

siltstone bedrock exposed in Boone County most likely belongs to the Mississippian Edwardsville Formation of the Borden Group of the Paleozoic Era (Fenelon and others, 1994). The sandstone, siltstone, shale, and limestone of the Borden Group originated as fine grained terrigenous and carbonate sediments deposited in the warm, shallow marine waters covering much of the North American Continent during the Paleozoic Era (Ehlers and Blatt, 1982). All of the bedrock units dip gently to the southwest, away from the Cincinnati Arch and into the Illinois Basin (Fenelon and others, 1994).

Topography

Topography is the general configuration of the land surface, including its relief and its natural and manmade features. Slope in Boone County ranges from level on bottomlands, terraces, and upland flats to very steep on uplands and terrace breaks. The lowest point in the county, about 772 feet above sea level, is in the western part of the county, near the Montgomery County line. The highest point, about 984 feet above sea level, and is in an area northeast of Jamestown.

The preglacial topography commonly determines the most important features in the county. The landscape was modified by glacial ice. Erosion and deposition flattened the existing hills and filled most of the valleys. The county is covered by till, which ranges from 50 to more than 400 feet in thickness. The landscape is largely defined by streams that entrench into the till and form a dendritic drainage pattern (Wayne, 1956).

Variations in relief have affected the drainage and development of the soils in the county. Relief influences soil formation by affecting drainage, runoff, and erosion.

Differences in relief affect moisture and air relationships within the soil. Soils that formed in the same type of parent material in steep areas are generally less well developed than soils in nearly level to sloping areas. This difference is caused an increase in runoff as slope increases and subsequently a decrease in the amount of water infiltrating the soil material. Less water is available for plant growth and for leaching of carbonates. The degree of soil profile development within a given time, in a given kind of parent material, and under the same type of vegetation depends largely on the amount of water that passes through the soil material.

Climate

The climate in Boone County generally is midcontinental. It is characterized by wide variations in temperature. Precipitation generally is evenly distributed throughout the year, but it is slightly heavier in spring and early summer than it is in fall.

The climate is so uniform throughout the county that differences among the soils cannot be attributed to differences in climate. Climate affects soil formation through its influence on weathering, plant and animal life, and erosion. Precipitation and temperature influence the rate of weathering and the subsequent breakdown of materials.

Acting alone on the parent material, climate is largely destructive, leaching soluble materials out of the soils. If combined with plant and animal activity, however, climatic processes can be constructive. A cycle is established between intake and outgo of plant nutrients. Plants draw nutrients from the lower part of the soil profile. When the plants die, the surface soil is renewed in varying degrees by the plant nutrients that are returned to the upper part of the soil. In Boone County the climate is such that nutrient leaching is greater than replacement.

Living Organisms

Plants have been a major factor influencing the formation of soils in the county. Bacteria, fungi, earthworms, and burrowing animals also have had an important effect. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material on and in the soil depends on the kinds of native plants that grew on the soil. The remains of these plants accumulated on the surface of the soil. They decayed and eventually became organic matter. Plant roots provided channels for the downward movement of water through the soil, brought plant nutrients from the lower part of the profile to the upper part, and added organic matter as they decayed. Bacteria in the soil helped to break down the organic matter into plant nutrients.

At one time Boone County was almost completely covered with hardwood trees. The most common species were poplar, oak, hickory, elm, maple, and ash. A comparatively small amount of organic matter derived from the forest was incorporated into the soils during soil formation. In forested areas on uplands that have never been cleared, thin layers of forest litter and

leaf mold cover the soil. In these areas a small amount of organic matter from decayed leaves and twigs is mixed throughout the top 1 or 2 inches of the surface layer. Crosby and Miami soils are examples of soils that formed mainly under hardwood trees.

The vegetation is fairly uniform throughout the county, except for areas of mixed grasses and hardwoods. Major differences among the soils, therefore, cannot be explained on the basis of differences in vegetation. Although some comparatively minor variations in the vegetation are associated with different soils, these variations probably are chiefly the result, and not the cause, of the differences among the soils.

Processes of Soil Formation

Several processes have been involved in the formation of the soils in Boone County. These processes are the accumulation of organic matter; the dissolution, transfer, and removal of calcium carbonates and bases; the liberation and translocation of silicate clay minerals; and the reduction and transfer of iron. In most of the soils, more than one of these processes have helped to differentiate soil horizons.

Some organic matter has accumulated in the surface layer of all of the soils in the county. In most of the soils, the surface layer has a low or moderately low content of organic matter.

Carbonates and bases have been leached from the upper horizons of most of the soils in the county. Leaching probably preceded the translocation of silicate clay minerals. Almost all of the carbonates and some of the bases have been leached from the A and B horizons of the well drained soils. Even in the wettest soils, some leaching is indicated by the absence of carbonates and by an acid soil reaction. Leaching of wet soils is slow because of a seasonal high water table or the slow movement of water through the profile.

Clay accumulates in pores and other voids and forms films on the surfaces along which water moves. The leaching of bases and the translocation of silicate clays are among the more important processes affecting horizon differentiation in the county. Crosby soils are examples of soils in which translocated silicate clays in the form of clay films have accumulated in the Bt horizon.

Gleying, or the reduction and transfer of iron, has occurred in all of the very poorly drained to somewhat poorly drained soils in the county. In these naturally wet soils, this process has had a significant effect on horizon differentiation. A gray subsoil indicates the reduction of iron oxides. This reduction is commonly accompanied by some transfer of the iron from the upper horizons to the lower ones or completely out of the profile. Redoximorphic concentrations in some of the horizons indicate the segregation of iron.

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Beach deposit. Material, such as sand and gravel, that is generally laid down parallel to an active or relict shoreline of a postglacial or glacial lake.

Beach ridge. A low, essentially continuous mound of beach or beach-and-dune material accumulated by the action of waves and currents on the backshore of a beach, beyond the present limit of storm waves or the reach of ordinary tides, and occurring singly or as one of a series of approximately parallel deposits. The ridges are roughly parallel to the shoreline and represent successive positions of an advancing shoreline.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Board foot. A unit of measurement represented by a board 1 foot wide, 1 foot long, and 1 inch thick.

Bog. Waterlogged, spongy ground consisting primarily of mosses and containing acidic, decaying vegetation (such as sphagnum, sedges, and heaths) that develops into peat.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Channery soil. A soil that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Cord. A unit of measurement of stacked wood. A standard cord occupies 128 cubic feet and has dimensions of 4 feet by 4 feet by 8 feet.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression. Any relatively sunken part of the earth’s surface, especially a low area surrounded by higher ground. Unlike an open depression, a closed depression has no natural outlet for surface drainage.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Disintegration moraine. A drift topography characterized by mounds and pits that generally are randomly oriented and developed in supraglacial drift by collapse and flow as the underlying stagnant ice melted. Slopes may be steep and unstable. Abrupt changes between materials of differing lithology are common.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively*

drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. Relatively small, linear depressions that at some time move concentrated water and either have no defined channel or have a small defined channel.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

End moraine. A ridgelike accumulation produced at the outer margin of an actively flowing glacier at any given time.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Herbaceous peat. An accumulation of organic material, decomposed to some degree, that consists dominantly of the remains of sedges, reeds, cattails, and other herbaceous plants.

High-chroma zones. Zones having chroma of 3 or more. Typical color in areas of iron concentrations.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue

from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Ice-walled lake plain. A relict surface marking the floor of an extinct lake basin that was formed on solid ground and surrounded by stagnant ice in a stable or unstable superglacial environment on stagnation moraines. As the ice melted, the lake plain became perched above the adjacent landscape. The lake plain consists of well sorted, generally fine textured, stratified deposits.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Lakebed. The bottom of a lake; a lake basin.

Lakeshore. A narrow strip of land in contact with or bordering a lake, especially the beach of a lake.

Lamella. A thin (commonly less than 1 centimeter thick), discontinuous or continuous, generally horizontal layer of fine material (especially clay and iron oxides) that has been pedogenically concentrated (illuviated within a coarser textured eluviated layer several centimeters to several decimeters thick).

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly. See Slippage.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Low-chroma zones. Zones having chroma of 2 or less. Typical color in areas of iron depletions.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat. Unconsolidated soil material consisting primarily of organic matter that is in an intermediate stage of decomposition. A significant part of the material can be recognized, and a significant part cannot be recognized.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth’s surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapling. A tree ranging from 1 to 5 inches in diameter at breast height.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawtimber. Hardwood trees more than 11 inches and conifers more than 9 inches in diameter at breast height.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand;

shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seedling. A tree less than 1 inch in diameter at breast height.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage, soil. Mass movement of soil that occurs when vegetation is removed and soil water is at or near saturation or when the slope is undercut.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Very gently sloping	2 to 4 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 12 percent
Strongly sloping	12 to 18 percent
Moderately steep	18 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and

sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stagnation moraine. A body of drift that was released when a melting glacier ceased flowing. Commonly, but not always, occurring near ice margins; composed of till, ice-contact stratified drift, and small areas of glacial lake sediment. Typical landforms are knob-and-kettle topography, locally including ice-walled lake plains.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land. A shallow depression resulting from uneven glacial deposition on an undulating ground moraine.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and

clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Woody peat. An accumulation of organic material that consists dominantly of trees, shrubs, and other woody plants.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Whitestown, Indiana)

Month	Temperature: Average daily maximum	Temperature: Average daily minimum	Temperature: Average daily	Temperature: 2 years in 10 will have-- Maximum temperature higher than--	Temperature: 2 years in 10 will have-- Minimum temperature lower than--	Temperature: Average number of growing degree days*	Precipitation: Average	Precipitation: 2 years in 10 will have-- Less than--	Precipitation: 2 years in 10 will have-- More than--	Precipitation: Average number of days with 0.10 inch or more	Precipitation: Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	33.3	16.2	24.8	61	-16	2	2.44	1.11	3.58	5	9.3
February----	39.1	20.0	29.6	68	-12	4	2.35	1.24	3.32	5	5.8
March-------	50.6	29.7	40.1	78	3	40	3.40	2.26	4.43	7	3.1
April-------	62.9	39.6	51.2	84	20	138	3.82	2.49	5.04	8	.3
May---------	73.9	50.2	62.0	90	32	377	4.47	2.69	6.07	9	.0
June--------	82.6	59.5	71.1	95	43	632	3.96	1.97	5.68	7	.0
July--------	85.8	63.1	74.5	98	48	760	4.44	1.91	6.59	6	.0
August------	83.9	60.6	72.2	95	45	688	3.55	1.58	5.22	5	.0
September---	78.1	53.0	65.5	93	34	467	3.01	1.26	4.50	5	.0
October-----	65.9	42.1	54.0	85	23	182	2.88	1.83	3.82	5	.3
November----	51.1	32.9	42.0	75	12	43	3.69	1.68	5.42	6	1.0
December----	38.2	22.6	30.4	64	-7	6	3.03	1.60	4.28	6	6.2
Yearly:											
Average---	62.1	40.8	51.5	---	---	---	---	---	---	---	---
Extreme---	104	-27	---	98	-19	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,340	41.03	34.48	46.01	74	26.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Whitestown, Indiana)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than-----	April 17	April 24	May 7
2 years in 10 later than-----	April 11	April 20	May 3
5 years in 10 later than-----	April 2	April 11	April 24
First freezing temperature in fall:			
1 year in 10 earlier than---	Oct. 21	Oct. 5	Sept. 25
2 years in 10 earlier than---	Oct. 26	Oct. 11	Sept. 30
5 years in 10 earlier than---	Nov. 6	Oct. 23	Oct. 10

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Whitestown, Indiana)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
9 years in 10	194	170	150
8 years in 10	202	178	156
5 years in 10	217	194	167
2 years in 10	231	209	178
1 year in 10	239	217	184

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
CbaA	Camden silt loam, 0 to 2 percent slopes	87	*
CudA	Crosby silt loam, 0 to 2 percent slopes	74,161	27.4
CxdA	Cyclone silty clay loam, 0 to 1 percent slopes	26,500	9.8
EdeAW	Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration	3,612	1.3
FdbA	Fincastle silt loam, 0 to 2 percent slopes	21,295	7.9
FdhA	Fincastle-Crosby silt loams, 0 to 2 percent slopes	1,407	0.5
FexB2	Fox loam, 2 to 6 percent slopes, eroded	514	0.2
FexC2	Fox loam, 6 to 12 percent slopes, eroded	425	0.2
MamA	Mahalasville silty clay loam, 0 to 1 percent slopes	12,692	4.7
MaoA	Mahalaland silty clay loam, 0 to 1 percent slopes	4	*
MjkAH	Medway and Beckville soils, 0 to 2 percent slopes, frequently flooded, brief duration	387	0.1
MmoB3	Miami clay loam, 2 to 6 percent slopes, severely eroded	373	0.1
MmoC3	Miami clay loam, 6 to 12 percent slopes, severely eroded	987	0.4
MmoD3	Miami clay loam, 12 to 18 percent slopes, severely eroded	141	*
MnpB2	Miami silt loam, 2 to 6 percent slopes, eroded	16,491	6.1
MnpC2	Miami silt loam, 6 to 12 percent slopes, eroded	2,046	0.8
MnpD2	Miami silt loam, 12 to 18 percent slopes, eroded	1,316	0.5
ObxA	Ockley silt loam, 0 to 2 percent slopes	3,488	1.3
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded	1,293	0.5
Ppu	Pits, sand and gravel	260	*
RqpG	Rodman-Rock outcrop complex, 35 to 70 percent slopes	7	*
RtuAH	Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration	2,727	1.0
SigE2	Senachwine silt loam, 18 to 25 percent slopes, eroded	242	*
SldAH	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	668	0.2
SldAW	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	3,254	1.2
SngA	Sleeth silt loam, 0 to 2 percent slopes	668	0.2
SnlAP	Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration	202	*
SocAH	Sloan silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration	174	*
SocAW	Sloan silty clay loam, 0 to 1 percent slopes, occasionally flooded, very brief duration	604	0.2
SteA	Starks silt loam, 0 to 2 percent slopes	1,253	0.5
StjA	Starks-Crosby silt loams, 0 to 2 percent slopes	2,681	1.0
SvqG	Strawn loam, 25 to 70 percent slopes	630	0.2
SvzG	Strawn-Rock outcrop complex, 35 to 70 percent slopes	1	*
ThrA	Treaty silty clay loam, 0 to 1 percent slopes	62,953	23.2
Uaz	Udorthents, sandy	14	*
Uby	Udorthents, loamy	110	*
UfnA	Urban land-Crosby complex, 0 to 2 percent slopes	1,612	0.6
UfoA	Urban land-Cyclone complex, 0 to 1 percent slopes	314	0.1
UfxA	Urban land-Fincastle complex, 0 to 2 percent slopes	1,271	0.5
UhuA	Urban land-Mahalasville complex, 0 to 1 percent slopes	435	0.2
UkbB	Urban land-Miami complex, 2 to 6 percent slopes	1,252	0.5
UkbC	Urban land-Miami complex, 6 to 12 percent slopes	289	0.1
UkbD	Urban land-Miami complex, 12 to 18 percent slopes	112	*
UkpA	Urban land-Ockley complex, 0 to 2 percent slopes	101	*
UkpB	Urban land-Ockley complex, 2 to 6 percent slopes	21	*
UmyA	Urban land-Treaty complex, 0 to 1 percent slopes	1,183	0.4
UnhA	Urban land-Wawaka complex, 0 to 2 percent slopes	4	*
UnuA	Urban land-Whitaker complex, 0 to 2 percent slopes	178	*
UnvB	Urban land-Williamstown-Crosby complex, 2 to 4 percent slopes	64	*
Usl	Udorthents, rubbish	382	0.1
W	Water	854	0.3
WdrA	Wawaka silt loam, 0 to 2 percent slopes	1,325	0.5
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded	1,225	0.5
WdrC2	Wawaka silt loam, 6 to 12 percent slopes, eroded	106	*
WdrD2	Wawaka silt loam, 12 to 18 percent slopes, eroded	63	*
WmnA	Waynetown silt loam, 0 to 2 percent slopes	22	*
WofB	Williamstown-Crosby silt loams, 2 to 4 percent slopes	5,150	1.9
WqvA	Westland silty clay loam, 0 to 1 percent slopes	1,330	0.5
WtaA	Whitaker silt loam, 0 to 2 percent slopes	3,105	1.1
XfuB2	Miami-Rainsville complex, 2 to 6 percent slopes, eroded	5,758	2.1
XfuC2	Miami-Rainsville complex, 6 to 12 percent slopes, eroded	1,134	0.4
	Total	270,957	100.0

* Less than 0.1 percent.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture

(See text for a description of the limitations and hazards listed in this table.)

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
CbaA:		
Camden	Low pH, crusting	Low pH
CudA:		
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH
CxdA:		
Cyclone	Ponding, wetness, low pH	Ponding, wetness, limited trafficability, low pH
EdeAW:		
Eel	Flooding, crusting	Flooding
Beckville	Flooding, high pH	Flooding, high pH
FdbA:		
Fincastle	Wetness, low pH, crusting	Limited trafficability, low pH
FdhA:		
Fincastle	Wetness, low pH, crusting	Limited trafficability, low pH
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH
FexB2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
FexC2:		
Fox	Limited rooting depth (sand and gravel), low pH, crusting, water erosion, moderate available water capacity	Limited rooting depth (sand and gravel), low pH, water erosion
MamA:		
Mahalasville	Ponding, wetness	Ponding, wetness, limited trafficability
MaoA:		
Mahalaland	Ponding, wetness	Ponding, wetness, limited trafficability
MjkAH:		
Medway	Flooding, high pH	Flooding, high pH
Beckville	Flooding, high pH	Flooding, high pH

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
MmoB3:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion, low available water capacity
MmoC3:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, low available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion, low available water capacity
MmoD3:		
Miami	Equipment limitation (slope), limited rooting depth (dense till), low pH, crusting, water erosion, low available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion, low available water capacity
MnpB2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MnpC2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
MnpD2:		
Miami	Equipment limitation (slope), limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion
ObxA:		
Ockley	Low pH, crusting	Low pH
ObxB2:		
Ockley	Low pH, crusting, water erosion	Low pH, water erosion
Ppu:		
Pits, sand and gravel	Not rated	Not rated
RqpG:		
Rodman	Equipment limitation (slope), limited rooting depth (sand and gravel), high pH, water erosion, low available water capacity	Equipment limitation (slope), limited rooting depth (sand and gravel), high pH, water erosion, low available water capacity
Rock outcrop	Areas of rock outcrop	Areas of rock outcrop

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
RtuAH:		
Rossburg	Flooding, high pH	Flooding, high pH
Landes	Flooding, high pH, moderate available water capacity	Flooding, high pH
SigE2:		
Senachwine	Equipment limitation (slope), limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion
SldAH:		
Shoals	Flooding, wetness, high pH	Flooding, limited trafficability, high pH
SldAW:		
Shoals	Flooding, wetness, high pH	Flooding, limited trafficability, high pH
SngA:		
Sleeth	Wetness, low pH, crusting, moderate available water capacity	Limited trafficability, low pH
SnlAP:		
Southwest	Ponding, wetness, low pH, crusting	Ponding, wetness, limited trafficability, low pH
SocAH:		
Sloan	Flooding, ponding, wetness, high pH	Flooding, ponding, wetness, limited trafficability, high pH
SocAW:		
Sloan	Flooding, ponding, wetness, high pH	Flooding, ponding, wetness, limited trafficability, high pH
SteA:		
Starks	Wetness, low pH, crusting	Limited trafficability, low pH
StjA:		
Starks	Wetness, low pH, crusting	Limited trafficability, low pH
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH
SvqG:		
Strawn	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
SvzG:		
Strawn	Equipment limitation (slope), low pH, crusting, water erosion, moderate available water capacity	Equipment limitation (slope), low pH, water erosion
Rock outcrop	Areas of rock outcrop	Areas of rock outcrop
ThrA:		
Treaty	Ponding, wetness, low pH	Ponding, wetness, limited trafficability, low pH
Uaz:		
Udorthents, sandy	Not rated	Not rated
Uby:		
Udorthents, loamy	Not rated	Not rated
UfnA:		
Urban land	Built-up land	Built-up land
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH
UfoA:		
Urban land	Built-up land	Built-up land
Cyclone	Ponding, wetness, low pH	Ponding, wetness, limited trafficability, low pH
UfxA:		
Urban land	Built-up land	Built-up land
Fincastle	Wetness, low pH, crusting	Limited trafficability, low pH
UhuA:		
Urban land	Built-up land	Built-up land
Mahalasville	Ponding, wetness	Ponding, wetness, limited trafficability
UkbB:		
Urban land	Built-up land	Built-up land
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
UkbC:		
Urban land	Built-up land	Built-up land
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
UkbD:		
Urban land	Built-up land	Built-up land
Miami	Equipment limitation (slope), limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion
UkpA:		
Urban land	Built-up land	Built-up land
Ockley	Low pH, crusting	Low pH
UkpB:		
Urban land	Built-up land	Built-up land
Ockley	Low pH, crusting, water erosion	Low pH, water erosion
UmyA:		
Urban land	Built-up land	Built-up land
Treaty	Ponding, wetness, low pH	Ponding, wetness, limited trafficability, low pH
UnhA:		
Urban land	Built-up land	Built-up land
Wawaka	Low pH, crusting	Low pH
UnuA:		
Urban land	Built-up land	Built-up land
Whitaker	Wetness, low pH, crusting	Limited trafficability, low pH
UnvB:		
Urban land	Built-up land	Built-up land
Williamstown	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH, water erosion
Usl:		
Udorthents, rubbish	Not rated	Not rated
W:		
Water	Water	Water

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards affecting cropland	Limitations and hazards affecting pasture
WdrA:		
Wawaka	Low pH, crusting	Low pH
WdrB2:		
Wawaka	Low pH, crusting, water erosion	Low pH, water erosion
WdrC2:		
Wawaka	Low pH, crusting, water erosion	Low pH, water erosion
WdrD2:		
Wawaka	Equipment limitation (slope), low pH, crusting, water erosion	Equipment limitation (slope), low pH, water erosion
WmnA:		
Waynetown	Wetness, low pH, crusting	Limited trafficability, low pH
WofB:		
Williamstown	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
Crosby	Wetness, limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited trafficability, limited rooting depth (dense till), low pH, water erosion
WqvA:		
Westland	Ponding, wetness	Ponding, wetness, limited trafficability
WtaA:		
Whitaker	Wetness, low pH, crusting	Limited trafficability, low pH
XfuB2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
Rainsville	Low pH, crusting, water erosion	Low pH, water erosion
XfuC2:		
Miami	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability	Limited rooting depth (dense till), low pH, water erosion
Rainsville	Low pH, crusting, water erosion	Low pH, water erosion

Table 6.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture	Soybeans	Winter wheat
		Bu	*Tons*	*AUM*	*Bu*	*Bu*
CbaA----------------- Camden	1	125	4.1	8.2	44	50
CudA----------------- Crosby	2w	106	3.5	7.0	37	47
CxdA----------------- Cyclone	2w	154	5.1	10.2	54	62
EdeAW---------------- Eel and Beckville	2w	115	3.8	7.6	40	40
FdbA----------------- Fincastle	2w	130	4.3	8.6	46	58
FdhA----------------- Fincastle-Crosby	2w	121	4.0	8.0	43	54
FexB2---------------- Fox	2e	89	2.9	5.8	31	43
FexC2---------------- Fox	3e	79	2.6	5.2	27	38
MamA----------------- Mahalasville	2w	140	4.6	9.2	49	56
MaoA----------------- Mahalaland	2w	144	4.8	9.6	50	58
MjkAH---------------- Medway and Beckville	2w	115	3.8	7.6	40	---
MmoB3---------------- Miami, severely eroded	3e	103	3.4	6.8	36	47
MmoC3---------------- Miami, severely eroded	4e	95	3.1	6.2	33	43
MmoD3---------------- Miami, severely eroded	6e	81	2.7	5.4	28	37
MnpB2---------------- Miami	2e	106	3.5	7.0	37	48
MnpC2---------------- Miami	3e	98	3.2	6.4	34	44
MnpD2---------------- Miami	4e	82	2.7	5.4	29	37
ObxA----------------- Ockley	1	111	3.7	7.4	39	44

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture	Soybeans	Winter wheat
		Bu	*Tons*	*AUM*	*Bu*	*Bu*
ObxB2---------------- Ockley	2e	105	3.5	7.0	37	42
Ppu. Pits, sand and gravel						
RqpG----------------- Rodman-------------- Rock outcrop--------	 7e ---	---	---	---	---	---
RtuAH---------------- Rossburg------------ Landes--------------	 2w 3w	115	3.8	7.6	40	---
SigE2---------------- Senachwine	6e	65	2.1	4.2	23	30
SldAH---------------- Shoals	2w	120	4.0	8.0	42	---
SldAW---------------- Shoals	2w	123	4.1	8.2	43	44
SngA----------------- Sleeth	2w	121	4.0	8.0	42	48
SnlAP---------------- Southwest	3w	123	4.1	8.2	43	49
SocAH---------------- Sloan	3w	129	4.3	8.6	46	---
SocAW---------------- Sloan	3w	134	4.4	8.8	47	48
SteA----------------- Starks	2w	136	4.5	9.0	47	55
StjA----------------- Starks-Crosby	2w	126	4.2	8.4	44	52
SvqG----------------- Strawn	7e	---	---	---	---	---
SvzG----------------- Strawn-------------- Rock outcrop--------	 7e ---	---	---	---	---	---
ThrA----------------- Treaty	2w	149	4.9	9.8	52	60
Uaz. Udorthents, sandy						
Uby. Udorthents, loamy						
UfnA: Urban land---------- Crosby--------------	 --- 2w	---	---	---	---	---

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture	Soybeans	Winter wheat
		Bu	*Tons*	*AUM*	*Bu*	*Bu*
UfoA:		---	---	---	---	---
Urban land----------	---					
Cyclone-------------	2w					
UfxA:		---	---	---	---	---
Urban land----------	---					
Fincastle-----------	2w					
UhuA:						
Urban land----------	---	---	---	---	---	---
Mahalasville--------	2w					
UkbB:		---	---	---	---	---
Urban land----------	---					
Miami---------------	2e					
UkbC:		---	---	---	---	---
Urban land----------	---					
Miami---------------	3e					
UkbD:		---	---	---	---	---
Urban land----------	---					
Miami---------------	4e					
UkpA:		---	---	---	---	---
Urban land----------	---					
Ockley--------------	1					
UkpB:		---	---	---	---	---
Urban land----------	---					
Ockley--------------	2e					
UmyA:		---	---	---	---	---
Urban land----------	---					
Treaty--------------	2w					
UnhA:		---	---	---	---	---
Urban land----------	---					
Wawaka--------------	1					
UnuA:		---	---	---	---	---
Urban land----------	---					
Whitaker------------	2w					
UnvB:		---	---	---	---	---
Urban land----------	---					
Williamstown--------	2e					
Crosby--------------	2w					
Usl.						
Udorthents, rubbish						
W.						
Water						
WdrA-----------------	1	110	3.6	7.2	39	44
Wawaka						
WdrB2----------------	2e	105	3.5	7.0	37	42
Wawaka						
WdrC2----------------	3e	95	3.1	6.2	33	38
Wawaka						

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture	Soybeans	Winter wheat
		Bu	*Tons*	*AUM*	*Bu*	*Bu*
WdrD2---------------- Wawaka	4e	91	3.0	6.0	32	37
WmnA----------------- Waynetown	2w	127	4.2	8.4	45	51
WofB-----------------		106	3.5	7.0	37	47
Williamstown--------	2e					
Crosby--------------	2w					
WqvA----------------- Westland	2w	140	4.6	9.2	49	56
WtaA----------------- Whitaker	2w	130	4.3	8.6	46	52
XfuB2---------------- Miami-Rainsville	2e	109	3.6	7.2	38	49
XfuC2---------------- Miami-Rainsville	3e	99	3.3	6.6	35	41

Table 7.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
CbaA	Camden silt loam, 0 to 2 percent slopes
CudA	Crosby silt loam, 0 to 2 percent slopes (where drained)
CxdA	Cyclone silty clay loam, 0 to 1 percent slopes (where drained)
EdeAW	Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration
FdbA	Fincastle silt loam, 0 to 2 percent slopes (where drained)
FdhA	Fincastle-Crosby silt loams, 0 to 2 percent slopes (where drained)
FexB2	Fox loam, 2 to 6 percent slopes, eroded
MamA	Mahalasville silty clay loam, 0 to 1 percent slopes (where drained)
MaoA	Mahalaland silty clay loam, 0 to 1 percent slopes (where drained)
MjkAH	Medway and Beckville soils, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
MnpB2	Miami silt loam, 2 to 6 percent slopes, eroded
ObxA	Ockley silt loam, 0 to 2 percent slopes
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded
RtuAH	Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
SldAH	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where drained and either protected from flooding or not frequently flooded during the growing season)
SldAW	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration (where drained)
SngA	Sleeth silt loam, 0 to 2 percent slopes (where drained)
SocAH	Sloan silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and either protected from flooding or not frequently flooded during the growing season)
SocAW	Sloan silty clay loam, 0 to 1 percent slopes, occasionally flooded, very brief duration (where drained)
SteA	Starks silt loam, 0 to 2 percent slopes (where drained)
StjA	Starks-Crosby silt loams, 0 to 2 percent slopes (where drained)
ThrA	Treaty silty clay loam, 0 to 1 percent slopes (where drained)
WdrA	Wawaka silt loam, 0 to 2 percent slopes
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded
WmnA	Waynetown silt loam, 0 to 2 percent slopes (where drained)
WofB	Williamstown-Crosby silt loams, 2 to 4 percent slopes (where drained)
WqvA	Westland silty clay loam, 0 to 1 percent slopes (where drained)
WtaA	Whitaker silt loam, 0 to 2 percent slopes (where drained)
XfuB2	Miami-Rainsville complex, 2 to 6 percent slopes, eroded

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height on the soil.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CbaA:					
Camden	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
CudA:					
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
CxdA:					
Cyclone	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EdeAW:					
Eel	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Beckville	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
FdbA: Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, bur oak, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FdhA: Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FexB2, FexC2: Fox	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MamA: Mahalasville	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MaoA:					
Mahalaland	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MjkAH:					
Medway	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, black walnut, blackgum, bur oak, pin oak, swamp white oak, sweetgum.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Beckville	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
MmoB3, MmoC3, MmoD3, MnpB2, MnpC2, MnpD2:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, black oak, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
ObxA, ObxB2:					
Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
Ppu:					
Pits, sand and gravel.					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
RqpG:					
Rodman	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Rock outcrop.					
RtuAH:					
Rossburg	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Landes	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
SigE2:					
Senachwine	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SldAH, SldAW:					
Shoals	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, pawpaw, roughleaf dogwood.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, overcup oak, shingle oak, Washington hawthorn.	Baldcypress, blackgum, cherrybark oak, green ash, pecan, pin oak, Shumard's oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
SngA:					
Sleeth	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SnlAP:					
Southwest	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SocAH, SocAW:					
Sloan	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SteA:					
Starks	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
StjA:					
Starks	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
StjA:					
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SvqG:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
SvzG:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Rock outcrop.					
ThrA:					
Treaty	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Uaz:					
Udorthents, sandy.					
Uby:					
Udorthents, loamy.					
UfnA:					
Urban land.					
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UfoA:					
Urban land.					
Cyclone	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UfxA:					
Urban land.					
Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, bur oak, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UhuA:					
Urban land.					
Mahalasville	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UkbB, UkbC, UkbD:					
Urban land.					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UkpA, UkpB: Urban land.					
Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
UmyA: Urban land.					
Treaty	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UnhA: Urban land.					
Wawaka	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
UnuA: Urban land.					
Whitaker	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
UnvB: Urban land.					
Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Usl: Udorthents, rubbish.					
W: Water.					
WdrA, WdrB2, WdrC2, WdrD2: Wawaka	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WmnA: Waynetown	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
WofB:					
Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WqvA:					
Westland	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WtaA:					
Whitaker	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
XfuB2, XfuC2:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
XfuB2, XfuC2:					
Rainsville--------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.

Table 9.--Forest Productivity

(Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
CbaA:				
Camden	Northern red oak	85	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	85	72	
	Tuliptree	95	100	
	Green ash	76	72	
CudA:				
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	
CxdA:				
Cyclone	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
	White oak	75	57	
EdeAW:				
Eel	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.
Beckville	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
FdbA:				
Fincastle	Tuliptree	85	86	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Northern red oak	75	57	
FdhA:				
Fincastle	Tuliptree	85	86	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak	75	57	
	Northern red oak	75	57	
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	
FexB2:				
Fox	Northern red oak	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
	White oak	---	---	
FexC2:				
Fox	Northern red oak	80	57	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
	White oak	---	---	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
MamA:				
Mahalasville	Pin oak	85	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
MaoA:				
Mahalaland	Pin oak	85	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
MjkAH:				
Medway	---	---	---	Baldcypress, black walnut, blackgum, bur oak, cherrybark oak, green ash, pecan, shellbark hickory, shingle oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum.
Beckville	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.
MmoB3:				
Miami, severely eroded	Tuliptree	98	100	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	White oak	90	72	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
MmoC3:				
Miami, severely eroded	Tuliptree	98	100	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	White oak	90	72	
MmoD3:				
Miami, severely eroded	Tuliptree	98	100	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
	White oak	90	72	
MnpB2:				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	
MnpC2:				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	
MnpD2:				
Miami	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	90	72	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			Cu ft/ac	
ObxA:				
Ockley	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	
ObxB2:				
Ockley	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	
Ppu:				
Pits, sand and gravel.				
RqpG:				
Rodman	Eastern white pine	85	172	Bitternut hickory, black walnut, Blue Ash, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
	Red pine	75	114	
Rock outcrop.				
RtuAH:				
Rossburg	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
RtuAH:				
Landes	---	---	---	Black walnut, blackgum, bur oak, green ash, shellbark hickory, shingle oak, Shumard's oak, swamp white oak, sweetgum.
SigE2:				
Senachwine	Northern red oak	85	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
SldAH:				
Shoals	Pin oak	90	72	Bitternut hickory, blackgum, bur oak, green ash, pin oak, shellbark hickory, Shumard's oak, swamp white oak.
SldAW:				
Shoals	Pin oak	90	72	Bitternut hickory, blackgum, bur oak, green ash, pin oak, shellbark hickory, Shumard's oak, swamp white oak.
SngA:				
Sleeth	White oak	70	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	Tuliptree	85	86	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
SnlAP:				
Southwest	Pin oak	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
	Red maple	70	43	
SocAH:				
Sloan	Pin oak	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
SocAW:				
Sloan	Pin oak	86	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
SteA:				
Starks	Northern red oak	80	57	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	Tuliptree	90	86	
	White oak	80	57	
StjA:				
Starks	Northern red oak	80	57	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	Tuliptree	90	86	
	White oak	80	57	
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			Cu ft/ac	
SvqG:				
Strawn	Northern red oak	85	72	Bitternut hickory, black walnut, Blue Ash, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
SvzG:				
Strawn	Northern red oak	85	72	Bitternut hickory, black walnut, Blue Ash, bur oak, chinkapin oak, green ash, hackberry, northern catalpa, northern white-cedar, Shumard's oak.
Rock outcrop.				
ThrA:				
Treaty	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Uaz:				
Udorthents, sandy.				
Uby:				
Udorthents, loamy.				
UfnA:				
Urban land.				
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			Cu ft/ac	
UfoA:				
Urban land.				
Cyclone	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UfxA:				
Urban land.				
Fincastle	Tuliptree	85	86	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Northern red oak	75	57	
UhuA:				
Urban land.				
Mahalasville	Pin oak	85	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UkbB:				
Urban land.				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
UkbC:				
Urban land.				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	
UkbD:				
Urban land.				
Miami	Tuliptree	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	90	72	
UkpA:				
Urban land.				
Ockley	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	
UkpB:				
Urban land.				
Ockley	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
UmyA:				
Urban land.				
Treaty	Pin oak	90	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UnhA:				
Urban land.				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
UnuA:				
Urban land.				
Whitaker	Tuliptree	85	86	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak	70	57	
	Northern red oak	75	57	
UnvB:				
Urban land.				
Williamstown	Northern red oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	110	129	
	White oak	---	---	
	Black cherry	---	---	
	Black walnut	---	---	
	White ash	---	---	
	Sugar maple	---	---	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
UnvB:				
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	
Usl:				
Udorthents, rubbish.				
W:				
Water.				
WdrA:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
WdrB2:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
WdrC2:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Site index	Volume of wood fiber	Trees to plant
			Cu ft/ac	
WdrD2:				
Wawaka	Tuliptree	93	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	White oak	74	57	
WmnA:				
Waynetown	White oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	Tuliptree	85	86	
WofB:				
Williamstown	Northern red oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	110	129	
	White oak	---	---	
	Black cherry	---	---	
	Black walnut	---	---	
	White ash	---	---	
	Sugar maple	---	---	
Crosby	Northern red oak	75	57	Bitternut hickory, blackgum, bur oak, eastern white pine, green ash, northern red oak, Shumard's oak, swamp white oak, tuliptree, white ash, white oak.
	White oak	75	57	
	Tuliptree	85	86	
WqvA:				
Westland	Pin oak	85	72	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.

See footnote at end of table.

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Local plant names	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to plant
			Cu ft/ac	
WtaA:				
Whitaker	Tuliptree	85	86	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
	White oak	70	57	
	Northern red oak	75	57	
XfuB2:				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	
Rainsville	White oak	88	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	
XfuC2:				
Miami	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Tuliptree	98	100	
Rainsville	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, pecan, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	Northern red oak	90	72	
	Tuliptree	98	100	

* Eastern white pine, northern red oak, tuliptree, and white oak are not recommended in low-lying areas of the soil.

Table 10A.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
CbaA:							
Camden	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
CudA:							
Crosby	93	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
CxdA:							
Cyclone	83	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
EdeAW:							
Eel	47	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Beckville	40	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
FdbA:							
Fincastle	84	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
FdhA:							
Fincastle	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
Crosby	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
FexB2:							
Fox	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
FexC2:							
Fox	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
MamA:							
Mahalasville	67	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
MaoA:							
Mahalaland	94	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
MjkAH:							
Medway	48	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Beckville	40	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
MmoB3:							
Miami, severely eroded	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
MmoC3:							
Miami, severely eroded	56	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
MmoD3:							
Miami, severely eroded	67	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
MnpB2:							
Miami	72	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
MnpC2:							
Miami	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
MnpD2:							
Miami	85	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
ObxA:							
Ockley	81	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
ObxB2:							
Ockley	79	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Landslides	0.50	Landslides	0.50		
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Landes	40	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
SigE2:							
Senachwine	73	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
SldAH:							
Shoals	68	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
SldAW:							
Shoals	68	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
SngA:							
Sleeth	87	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
SnlAP:							
Southwest	90	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
SocAH:							
Sloan	94	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
SocAW:							
Sloan----------------	94	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
SteA:							
Starks---------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
StjA:							
Starks---------------	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
Crosby---------------	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
SvqG:							
Strawn---------------	90	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
SvzG:							
Strawn---------------	55	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
Rock outcrop---------	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty---------------	90	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
Uaz:							
Udorthents, sandy---	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy---	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Crosby---------------	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
UmyA:							
Urban land	50	Not rated		Not rated		Not rated	
Treaty	44	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
UnhA:							
Urban land	50	Not rated		Not rated		Not rated	
Wawaka	38	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
UnuA:							
Urban land	50	Not rated		Not rated		Not rated	
Whitaker	32	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
UnvB:							
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	31	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Crosby	18	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WdrB2:							
Wawaka	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WdrC2:							
Wawaka	75	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
WdrD2:							
Wawaka	75	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		

Table 10A.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WmnA:							
Waynetown-----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
WofB:							
Williamstown--------	62	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Crosby--------------	36	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
WqvA:							
Westland------------	70	Moderate		Poorly suited		Severe	
		Wetness	0.75	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
WtaA:							
Whitaker------------	62	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
XfuB2:							
Miami---------------	60	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Rainsville----------	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
XfuC2:							
Miami---------------	65	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
Rainsville----------	25	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		

Table 10B.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CbaA:							
Camden	85	Slight		Slight		Moderately suited	
						Low strength	0.50
CudA:							
Crosby	93	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
CxdA:							
Cyclone	83	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
EdeAW:							
Eel	47	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Beckville	40	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
FdbA:							
Fincastle	84	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
FdhA:							
Fincastle	55	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
Crosby	30	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
FexB2:							
Fox	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
FexC2:							
Fox	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
MamA:							
Mahalasville	67	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
MaoA:							
Mahalaland----------	94	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
MjkAH:							
Medway--------------	48	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Beckville-----------	40	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
MmoB3:							
Miami, severely eroded-------------	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
MmoC3:							
Miami, severely eroded-------------	56	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
MmoD3:							
Miami, severely eroded-------------	67	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
MnpB2:							
Miami---------------	72	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
MnpC2:							
Miami---------------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
MnpD2:							
Miami---------------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
ObxA:							
Ockley--------------	81	Slight		Slight		Moderately suited	
						Low strength	0.50
ObxB2:							
Ockley--------------	79	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Ppu:							
Pits, sand and gravel-------------	80	Not rated		Not rated		Not rated	

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
RqpG:							
Rodman	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.50
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Landes	40	Slight		Slight		Poorly suited	
						Flooding	1.00
SigE2:							
Senachwine	73	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
SldAH:							
Shoals	68	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	0.50
						Low strength	0.50
SldAW:							
Shoals	68	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	0.50
						Low strength	0.50
SngA:							
Sleeth	87	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
SnlAP:							
Southwest	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	0.50
						Low strength	0.50
SocAH:							
Sloan	94	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
SocAW:							
Sloan	94	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
SteA:							
Starks	85	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
StjA:							
Starks	55	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
Crosby	35	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
SvqG:							
Strawn	90	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
SvzG:							
Strawn	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
Rock outcrop	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Slight		Slight		Moderately suited	
						Wetness	0.50
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Slight		Slight		Poorly suited	
						Ponding	1.00
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Slight		Slight		Moderately suited	
						Low strength	0.50
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
UmyA:							
Urban land	50	Not rated		Not rated		Not rated	
Treaty	44	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
UnhA:							
Urban land	50	Not rated		Not rated		Not rated	
Wawaka	38	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
UnuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Whitaker------------	32	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
UnvB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Williamstown--------	31	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Crosby--------------	18	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Wetness	0.50
						Low strength	0.50
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka--------------	75	Slight		Slight		Moderately suited	
						Low strength	0.50
WdrB2:							
Wawaka--------------	75	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
WdrC2:							
Wawaka--------------	75	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
WdrD2:							
Wawaka--------------	75	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
WmnA:							
Waynetown-----------	85	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
WofB:							
Williamstown--------	62	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Crosby--------------	36	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Wetness	0.50
						Low strength	0.50
WqvA:							
Westland------------	70	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50

Table 10B.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
WtaA:							
Whitaker	62	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
XfuB2:							
Miami	60	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Rainsville	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
XfuC2:							
Miami	65	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10
Rainsville	25	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.10

Table 10C.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
CbaA:							
Camden	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CudA:							
Crosby	93	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CxdA:							
Cyclone	83	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
EdeAW:							
Eel	47	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Beckville	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50
FdbA:							
Fincastle	84	Well suited		Well suited		Moderately suited	
						Low strength	0.50
FdhA:							
Fincastle	55	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Crosby	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
FexB2:							
Fox	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
FexC2:							
Fox	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
MamA:							
Mahalasville	67	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
MaoA:							
Mahalaland	94	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
MjkAH:							
Medway	48	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Beckville	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10C.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
MmoB3:							
Miami, severely eroded	55	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
MmoC3:							
Miami, severely eroded	56	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
MmoD3:							
Miami, severely eroded	67	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
MnpB2:							
Miami	72	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MnpC2:							
Miami	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
MnpD2:							
Miami	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
ObxA:							
Ockley	81	Well suited		Well suited		Moderately suited	
						Low strength	0.50
ObxB2:							
Ockley	79	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Landes	40	Well suited		Well suited		Well suited	
SigE2:							
Senachwine	73	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
SldAH:							
Shoals	68	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10C.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
SldAW:							
Shoals	68	Well suited		Well suited		Moderately suited	
						Low strength	0.50
SngA:							
Sleeth	87	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
SnlAP:							
Southwest	90	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
SocAH:							
Sloan	94	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
						Low strength	0.50
SocAW:							
Sloan	94	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
						Low strength	0.50
SteA:							
Starks	85	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
StjA:							
Starks	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Crosby	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
SvqG:							
Strawn	90	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
SvzG:							
Strawn	55	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
Rock outcrop	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty	90	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	

Table 10C.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Low strength	0.50
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10C.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
UmyA:							
Urban land	50	Not rated		Not rated		Not rated	
Treaty	44	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
UnhA:							
Urban land	50	Not rated		Not rated		Not rated	
Wawaka	38	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
UnuA:							
Urban land	50	Not rated		Not rated		Not rated	
Whitaker	32	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UnvB:							
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	31	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Crosby	18	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
WdrB2:							
Wawaka	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
WdrC2:							
Wawaka	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Slope	0.50	Low strength	0.50
				Stickiness	0.50		
WdrD2:							
Wawaka	75	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
				Stickiness	0.50		
WmnA:							
Waynetown	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10C.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
WofB:							
Williamstown	62	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Crosby	36	Well suited		Well suited		Moderately suited	
						Low strength	0.50
WqvA:							
Westland	70	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
WtaA:							
Whitaker	62	Well suited		Well suited		Moderately suited	
						Low strength	0.50
XfuB2:							
Miami	60	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Rainsville	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
XfuC2:							
Miami	65	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Rainsville	25	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 10D.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
CbaA:					
Camden--------------	85	Moderate		Low	
		Texture/rock fragments	0.50		
CudA:					
Crosby--------------	93	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
CxdA:					
Cyclone-------------	83	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
EdeAW:					
Eel-----------------	47	Low		Low	
		Texture/rock fragments	0.10		
Beckville-----------	40	Low		Low	
		Texture/rock fragments	0.10		
FdbA:					
Fincastle-----------	84	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
FdhA:					
Fincastle-----------	55	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Crosby--------------	30	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
FexB2:					
Fox-----------------	80	Moderate		Low	
		Texture/rock fragments	0.50		
FexC2:					
Fox-----------------	80	Moderate		Low	
		Texture/rock fragments	0.50		
MamA:					
Mahalasville--------	67	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 10D.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
MaoA:					
Mahalaland----------	94	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
MjkAH:					
Medway--------------	48	Low		Low	
		Texture/rock fragments	0.10		
Beckville-----------	40	Low		Low	
		Texture/rock fragments	0.10		
MmoB3:					
Miami, severely eroded-------------	55	Low		Low	
MmoC3:					
Miami, severely eroded-------------	56	Low		Low	
MmoD3:					
Miami, severely eroded-------------	67	Low		Low	
MnpB2:					
Miami---------------	72	Moderate		Low	
		Texture/rock fragments	0.50		
MnpC2:					
Miami---------------	85	Moderate		Low	
		Texture/rock fragments	0.50		
MnpD2:					
Miami---------------	85	Moderate		Low	
		Texture/rock fragments	0.50		
ObxA:					
Ockley--------------	81	Moderate		Low	
		Texture/rock fragments	0.50		
ObxB2:					
Ockley--------------	79	Moderate		Low	
		Texture/rock fragments	0.50		
Ppu:					
Pits, sand and gravel-------------	80	Not rated		Not rated	
RqpG:					
Rodman--------------	50	Low		Moderate	
		Texture/rock fragments	0.10	Lime	0.50
Rock outcrop--------	40	Not rated		Not rated	

Table 10D.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
RtuAH:					
Rossburg	50	Low		Low	
		Texture/rock fragments	0.10		
Landes	40	Low		Low	
		Texture/rock fragments	0.10		
SigE2:					
Senachwine	73	Low		Low	
		Texture/rock fragments	0.10		
SldAH:					
Shoals	68	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SldAW:					
Shoals	68	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SngA:					
Sleeth	87	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SnlAP:					
Southwest	90	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SocAH:					
Sloan	94	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SocAW:					
Sloan	94	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SteA:					
Starks	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
StjA:					
Starks	55	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Crosby	35	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SvqG:					
Strawn	90	Low		Low	

Table 10D.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
SvzG:					
Strawn	55	Low		Low	
Rock outcrop	35	Not rated		Not rated	
ThrA:					
Treaty	90	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Uaz:					
Udorthents, sandy	100	Not rated		Not rated	
Uby:					
Udorthents, loamy	100	Not rated		Not rated	
UfnA:					
Urban land	50	Not rated		Not rated	
Crosby	45	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UfoA:					
Urban land	50	Not rated		Not rated	
Cyclone	40	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UfxA:					
Urban land	50	Not rated		Not rated	
Fincastle	42	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UhuA:					
Urban land	50	Not rated		Not rated	
Mahalasville	34	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UkbB:					
Urban land	50	Not rated		Not rated	
Miami	36	Moderate		Low	
		Texture/rock fragments	0.50		
UkbC:					
Urban land	50	Not rated		Not rated	
Miami	42	Moderate		Low	
		Texture/rock fragments	0.50		

Table 10D.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
UkbD:					
Urban land	50	Not rated		Not rated	
Miami	42	Moderate		Low	
		Texture/rock fragments	0.50		
UkpA:					
Urban land	50	Not rated		Not rated	
Ockley	40	Moderate		Low	
		Texture/rock fragments	0.50		
UkpB:					
Urban land	50	Not rated		Not rated	
Ockley	40	Moderate		Low	
		Texture/rock fragments	0.50		
UmyA:					
Urban land	50	Not rated		Not rated	
Treaty	44	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UnhA:					
Urban land	50	Not rated		Not rated	
Wawaka	38	Low		Low	
		Texture/rock fragments	0.10		
UnuA:					
Urban land	50	Not rated		Not rated	
Whitaker	32	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
UnvB:					
Urban land	50	Not rated		Not rated	
Williamstown	31	Moderate		Low	
		Texture/rock fragments	0.50		
Crosby	18	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Usl:					
Udorthents, rubbish	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 10D.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
WdrA:					
Wawaka	75	Low		Low	
		Texture/rock fragments	0.10		
WdrB2:					
Wawaka	75	Moderate		Low	
		Texture/rock fragments	0.50		
WdrC2:					
Wawaka	75	Moderate		Low	
		Texture/rock fragments	0.50		
WdrD2:					
Wawaka	75	Moderate		Low	
		Texture/rock fragments	0.50		
WmnA:					
Waynetown	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
WofB:					
Williamstown	62	Moderate		Low	
		Texture/rock fragments	0.50		
Crosby	36	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
WqvA:					
Westland	70	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
WtaA:					
Whitaker	62	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
XfuB2:					
Miami	60	Moderate		Low	
		Texture/rock fragments	0.50		
Rainsville	30	Moderate		Low	
		Texture/rock fragments	0.50		
XfuC2:					
Miami	65	Moderate		Low	
		Texture/rock fragments	0.50		
Rainsville	25	Moderate		Low	
		Texture/rock fragments	0.50		

Table 11A.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
CbaA:							
Camden	85	Not limited		Not limited		Not limited	
CudA:							
Crosby	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
CxdA:							
Cyclone	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
EdeAW:							
Eel	47	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Depth to saturated zone	0.98			Flooding	0.60
Beckville	40	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Depth to saturated zone	0.98			Flooding	0.60
FdbA:							
Fincastle	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FdhA:							
Fincastle	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Crosby	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
FexB2:							
Fox	80	Not limited		Not limited		Somewhat limited	
						Slope	0.55
FexC2:							
Fox	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
MamA:							
Mahalasville	67	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
MaoA:							
Mahalaland	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
MjkAH:							
Medway	48	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
		Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
Beckville	40	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
		Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
MmoB3:							
Miami, severely eroded	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.88
						Restricted permeability	0.21
MmoC3:							
Miami, severely eroded	56	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.21
MmoD3:							
Miami, severely eroded	67	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
MnpB2:							
Miami	72	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.55
						Restricted permeability	0.21
MnpC2:							
Miami	85	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.21
MnpD2:							
Miami	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
ObxA:							
Ockley	81	Not limited		Not limited		Not limited	

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
ObxB2:							
Ockley	79	Not limited		Not limited		Somewhat limited	
						Slope	0.55
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.76
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Landes	40	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
SigE2:							
Senachwine	73	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
SldAH:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
SldAW:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
SngA:							
Sleeth	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SnlAP:							
Southwest	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
SocAH:							
Sloan	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SocAW:							
Sloan	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00			Flooding	0.60
SteA:							
Starks	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
StjA:							
Starks	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Crosby	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
SvqG:							
Strawn	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
SvzG:							
Strawn	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Rock outcrop	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.55
						Restricted permeability	0.21
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.21
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Not limited		Not limited		Not limited	
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Not limited		Not limited		Somewhat limited	
						Slope	0.55

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
UmyA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Treaty--------------	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
UnhA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Wawaka--------------	38	Not limited		Not limited		Not limited	
UnuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Whitaker------------	32	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UnvB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Williamstown--------	31	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
						Slope	0.15
Crosby--------------	18	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
						Slope	0.15
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka--------------	75	Not limited		Not limited		Not limited	
WdrB2:							
Wawaka--------------	75	Not limited		Not limited		Somewhat limited	
						Slope	0.55
WdrC2:							
Wawaka--------------	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
WdrD2:							
Wawaka--------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 11A.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
WmnA:							
Waynetown	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WofB:							
Williamstown	62	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
						Slope	0.15
Crosby	36	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
						Slope	0.15
WqvA:							
Westland	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
WtaA:							
Whitaker	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
XfuB2:							
Miami	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.55
						Restricted permeability	0.21
Rainsville	30	Not limited		Not limited		Somewhat limited	
						Slope	0.55
XfuC2:							
Miami	65	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
		Slope	0.01	Slope	0.01	Restricted permeability	0.21
Rainsville	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00

Table 11B.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CbaA:							
Camden	85	Not limited		Not limited		Not limited	
CudA:							
Crosby	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CxdA:							
Cyclone	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
EdeAW:							
Eel	47	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
						Flooding	0.60
Beckville	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
						Flooding	0.60
FdbA:							
Fincastle	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FdhA:							
Fincastle	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Crosby	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FexB2:							
Fox	80	Not limited		Not limited		Not limited	
FexC2:							
Fox	80	Not limited		Not limited		Somewhat limited	
						Slope	0.01
MamA:							
Mahalasville	67	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11B.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
MaoA:							
Mahalaland	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
MjkAH:							
Medway	48	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
Beckville	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
MmoB3:							
Miami, severely eroded	55	Not limited		Not limited		Not limited	
MmoC3:							
Miami, severely eroded	56	Not limited		Not limited		Somewhat limited	
						Slope	0.01
MmoD3:							
Miami, severely eroded	67	Somewhat limited		Not limited		Very limited	
		Slope	0.01			Slope	1.00
MnpB2:							
Miami	72	Not limited		Not limited		Not limited	
MnpC2:							
Miami	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.01
MnpD2:							
Miami	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.01				
ObxA:							
Ockley	81	Not limited		Not limited		Not limited	
ObxB2:							
Ockley	79	Not limited		Not limited		Not limited	
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Carbonate content	1.00
						Droughty	0.98
Rock outcrop	40	Not rated		Not rated		Not rated	

Table 11B.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
RtuAH:							
Rossburg	50	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Landes	40	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
SigE2:							
Senachwine	73	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50				
SldAH:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
SldAW:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
SngA:							
Sleeth	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SnlAP:							
Southwest	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
SocAH:							
Sloan	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
SocAW:							
Sloan	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Flooding	0.60
SteA:							
Starks	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
StjA:							
Starks	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11B.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
StjA:							
Crosby	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SvqG:							
Strawn	90	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	1.00		
SvzG:							
Strawn	55	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	1.00		
Rock outcrop	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 11B.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
UkbB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	36	Not limited		Not limited		Not limited	
UkbC:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.01
UkbD:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.01				
UkpA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Not limited		Not limited		Not limited	
UkpB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Not limited		Not limited		Not limited	
UmyA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Treaty--------------	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
UnhA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Wawaka--------------	38	Not limited		Not limited		Not limited	
UnuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Whitaker------------	32	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UnvB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Williamstown--------	31	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Crosby--------------	18	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11B.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Not limited		Not limited		Not limited	
WdrB2:							
Wawaka	75	Not limited		Not limited		Not limited	
WdrC2:							
Wawaka	75	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.01
WdrD2:							
Wawaka	75	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.01				
WmnA:							
Waynetown	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WofB:							
Williamstown	62	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Crosby	36	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WqvA:							
Westland	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
WtaA:							
Whitaker	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
XfuB2:							
Miami	60	Not limited		Not limited		Not limited	
Rainsville	30	Not limited		Not limited		Not limited	
XfuC2:							
Miami	65	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.01
Rainsville	25	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.01

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CbaA:										
Camden	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CudA:										
Crosby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
CxdA:										
Cyclone	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
EdeAW:										
Eel	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Beckville	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
FdbA:										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
FdhA:										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Crosby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
FexB2:										
Fox	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FexC2:										
Fox	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MamA:										
Mahalasville	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
MaoA:										
Mahalaland	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Poor.
MjkAH:										
Medway	Poor	Fair	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
Beckville	Poor	Fair	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
MmoB3:										
Miami, severely eroded	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MmoC3:										
Miami, severely eroded	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MmoD3:										
Miami, severely eroded	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MnpB2:										
Miami	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MnpC2:										
Miami	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MnpD2:										
Miami	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
ObxA:										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ObxB2:										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ppu:										
Pits, sand and gravel.										
RqpG:										
Rodman	Very poor.	Poor	Fair	Good	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop.										
RtuAH:										
Rossburg	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Landes	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SigE2:										
Senachwine	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SldAH:										
Shoals	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
SldAW:										
Shoals	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
SngA:										
Sleeth	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SnlAP:										
Southwest	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
SocAH:										
Sloan	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
SocAW:										
Sloan	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
SteA:										
Starks	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
StjA:										
Starks	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Crosby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SvqG:										
Strawn	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
SvzG:										
Strawn	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rock outcrop.										
ThrA:										
Treaty	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
Uaz:										
Udorthents, sandy.										
Uby:										
Udorthents, loamy.										
UfnA:										
Urban land.										
Crosby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
UfoA:										
Urban land.										
Cyclone	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
UfxA:										
Urban land.										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
UhuA:										
Urban land.										
Mahalasville	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
UkbB:										
Urban land.										
Miami	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UkbC:										
Urban land.										
Miami	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
UkbD:										
Urban land.										
Miami	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
UkpA:										
Urban land.										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UkpB:										
Urban land.										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UmyA:										
Urban land.										
Treaty	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
UnhA:										
Urban land.										
Wawaka	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UnuA:										
Urban land.										
Whitaker	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
UnvB:										
Urban land.										
Williamstown	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Crosby	Fair	Good	Good	Good	Good	Fair	Very poor.	Good	Good	Fair.
Usl:										
Udorthents, rubbish.										
W:										
Water.										
WdrA:										
Wawaka	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WdrB2:										
Wawaka	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WdrC2:										
Wawaka	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WdrD2:										
Wawaka	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
WmnA:										
Waynetown	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
WofB:										
Williamstown	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Crosby	Fair	Good	Good	Good	Good	Fair	Very poor.	Good	Good	Fair.
WqvA:										
Westland	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
WtaA:										
Whitaker	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
XfuB2:										
Miami	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rainsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
XfuC2:										
Miami	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rainsville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 13A.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
CbaA:							
Camden	85	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
CudA:							
Crosby	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CxdA:							
Cyclone	83	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EdeAW:							
Eel	47	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
Beckville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
FdbA:							
Fincastle	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FdhA:							
Fincastle	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Crosby	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FexB2:							
Fox	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.01
FexC2:							
Fox	80	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.01	Slope	0.01	Shrink-swell	0.50

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
MamA:							
Mahalasville	67	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MaoA:							
Mahalaland	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MjkAH:							
Medway	48	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Beckville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
MmoB3:							
Miami, severely eroded	55	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.12
MmoC3:							
Miami, severely eroded	56	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
MmoD3:							
Miami, severely eroded	67	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50		
MnpB2:							
Miami	72	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.01

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
MnpC2:							
Miami---------------	85	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
MnpD2:							
Miami---------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50		
ObxA:							
Ockley--------------	81	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
ObxB2:							
Ockley--------------	79	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
						Slope	0.01
Ppu:							
Pits, sand and gravel-------------	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman--------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop--------	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg------------	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Landes--------------	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
SigE2:							
Senachwine----------	73	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
SldAH:							
Shoals--------------	68	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SldAW:							
Shoals--------------	68	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
SngA:							
Sleeth	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SnlAP:							
Southwest	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
SocAH:							
Sloan	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SocAW:							
Sloan	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SteA:							
Starks	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
StjA:							
Starks	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Crosby	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SvqG:							
Strawn	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
SvzG:							
Strawn	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
ThrA:							
Treaty	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.01

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
UkbC:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
UkbD:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50		
UkpA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
UkpB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
						Slope	0.01
UmyA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Treaty--------------	44	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UnhA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Wawaka--------------	38	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
UnuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Whitaker------------	32	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50			Shrink-swell	0.50

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
UnvB:							
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	31	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Crosby	18	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
WdrB2:							
Wawaka	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
						Slope	0.01
WdrC2:							
Wawaka	75	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.01	Slope	0.01	Shrink-swell	0.50
WdrD2:							
Wawaka	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
WmnA:							
Waynetown	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
WofB:							
Williamstown	62	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Crosby	36	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13A.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
WqvA:							
Westland	70	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WtaA:							
Whitaker	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
XfuB2:							
Miami	60	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.01
Rainsville	30	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
				Shrink-swell	0.50	Slope	0.01
XfuC2:							
Miami	65	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
Rainsville	25	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		

Table 13B.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
CbaA:							
Camden	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
CudA:							
Crosby	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
CxdA:							
Cyclone	83	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
EdeAW:							
Eel	47	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Low strength	0.78				
		Depth to saturated zone	0.75	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
		Frost action	0.50				
Beckville	40	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Flooding	0.60	Flooding	0.60
		Frost action	0.50	Cutbanks cave	0.10		
FdbA:							
Fincastle	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
FdhA:							
Fincastle	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
FdhA:							
Crosby	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
FexB2:							
Fox	80	Somewhat limited		Very limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
FexC2:							
Fox	80	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Cutbanks cave	1.00	Slope	0.01
		Frost action	0.50	Depth to dense layer	0.50		
		Slope	0.01				
				Slope	0.01		
MamA:							
Mahalasville	67	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
MaoA:							
Mahalaland	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
MjkAH:							
Medway	48	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	0.75			Depth to saturated zone	0.75
				Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
		Low strength	0.22				
Beckville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	0.75			Depth to saturated zone	0.75
				Flooding	0.80		
		Frost action	0.50	Cutbanks cave	0.10		

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
MmoB3:							
Miami, severely eroded	55	Very limited		Very limited		Not limited	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
MmoC3:							
Miami, severely eroded	56	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
		Slope	0.01	Slope	0.01		
MmoD3:							
Miami, severely eroded	67	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
MnpB2:							
Miami	72	Very limited		Very limited		Not limited	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
MnpC2:							
Miami	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
		Slope	0.01	Slope	0.01		
MnpD2:							
Miami	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
ObxA:							
Ockley	81	Somewhat limited		Very limited		Not limited	
		Low strength	0.78	Cutbanks cave	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
		Shrink-swell	0.06				

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ObxB2:							
Ockley	79	Somewhat limited		Very limited		Not limited	
		Low strength	0.78	Cutbanks cave	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
		Shrink-swell	0.06				
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Carbonate content	1.00
				Depth to dense layer	0.50	Droughty	0.98
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80		
		Frost action	0.50				
Landes	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
		Frost action	0.50	Flooding	0.80		
SigE2:							
Senachwine	73	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.78	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
SldAH:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.80		
		Low strength	0.78				
SldAW:							
Shoals	68	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
		Low strength	0.78				
SngA:							
Sleeth	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
SnlAP:							
Southwest	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.06				
SocAH:							
Sloan	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
SocAW:							
Sloan	94	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
SteA:							
Starks	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
StjA:							
Starks	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
Crosby	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strenth	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
SvqG:							
Strawn	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10		
SvzG:							
Strawn	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10		

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
SvzG:							
Rock outcrop	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	36	Very limited		Very limited		Not limited	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
		Slope	0.01	Slope	0.01		
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Somewhat limited		Very limited		Not limited	
		Low strength	0.78	Cutbanks cave	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
		Shrink-swell	0.06				
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Somewhat limited		Very limited		Not limited	
		Low strength	0.78	Cutbanks cave	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
		Shrink-swell	0.06				
UmyA:							
Urban land	50	Not rated		Not rated		Not rated	
Treaty	44	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
UnhA:							
Urban land	50	Not rated		Not rated		Not rated	
Wawaka	38	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to dense layer	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
UnuA:							
Urban land	50	Not rated		Not rated		Not rated	
Whitaker	32	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50				
UnvB:							
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	31	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Depth to dense layer	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
Crosby	18	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to dense layer	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
WdrB2:							
Wawaka	75	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to dense layer	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
WdrC2:							
Wawaka	75	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to dense layer	0.50	Slope	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50	Slope	0.01		
		Slope	0.01				

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
WdrD2:							
Wawaka	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to dense layer	0.50		
		Shrink-swell	0.50				
		Frost action	0.50	Cutbanks cave	0.10		
WmnA:							
Waynetown	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
WofB:							
Williamstown	62	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Depth to dense layer	0.50		
		Shrink-swell	0.50				
		Frost action	0.50	Cutbanks cave	0.10		
Crosby	36	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to dense layer	0.50		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
WqvA:							
Westland	70	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
				Depth to dense layer	0.50		
WtaA:							
Whitaker	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50				
XfuB2:							
Miami	60	Very limited		Very limited		Not limited	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50				
				Cutbanks cave	0.10		

Table 13B.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
XfuB2:							
Rainsville	30	Somewhat limited		Very limited		Not limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00		
		Frost action	0.50	Depth to dense layer	0.50		
		Low strength	0.22	Cutbanks cave	0.10		
XfuC2:							
Miami	65	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
		Shrink-swell	0.50	Depth to dense layer	0.50		
		Frost action	0.50	Cutbanks cave	0.10		
		Slope	0.01	Slope	0.01		
Rainsville	25	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	0.01
		Frost action	0.50	Depth to dense layer	0.50		
		Low strength	0.22	Cutbanks cave	0.10		
		Slope	0.01	Slope	0.01		

Table 14A.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
CbaA:					
Camden	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
CudA:					
Crosby	93	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Depth to saturated zone	1.00		
CxdA:					
Cyclone	83	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.53
EdeAW:					
Eel	47	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
Beckville	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
FdbA:					
Fincastle	84	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Restricted permeability	1.00		
FdhA:					
Fincastle	55	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Restricted permeability	1.00		
Crosby	30	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Depth to saturated zone	1.00		

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
FexB2:					
Fox	80	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.35
FexC2:					
Fox	80	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	1.00
		Slope	0.01		
MamA:					
Mahalasville	67	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
MaoA:					
Mahalaland	94	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Poor filtering capacity	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		
MjkAH:					
Medway	48	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Restricted permeability	0.46	Depth to saturated zone	1.00
Beckville	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
MmoB3:					
Miami, severely eroded	55	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Restricted permeability	1.00	Slope	0.68
				Seepage	0.53

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
MmoC3:					
Miami, severely eroded	56	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	0.01	Seepage	0.53
MmoD3:					
Miami, severely eroded	67	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	1.00	Seepage	0.53
MnpB2:					
Miami	72	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.35
MnpC2:					
Miami	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	0.01	Seepage	0.53
MnpD2:					
Miami	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	1.00	Seepage	0.53
ObxA:					
Ockley	81	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46		
ObxB2:					
Ockley	79	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.35
Ppu:					
Pits, sand and gravel	80	Not rated		Not rated	

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
RqpG:					
Rodman	50	Very limited		Very limited	
		Poor filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
Rock outcrop	40	Not rated		Not rated	
RtuAH:					
Rossburg	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.46	Seepage	1.00
Landes	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Poor filtering capacity	1.00	Seepage	1.00
SigE2:					
Senachwine	73	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
SldAH:					
Shoals	68	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
SldAW:					
Shoals	68	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
SngA:					
Sleeth	87	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Poor filtering capacity	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		
SnlAP:					
Southwest	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.53

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SocAH:					
Sloan	94	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	0.28
SocAW:					
Sloan	94	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	0.28
SteA:					
Starks	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
StjA:					
Starks	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
Crosby	35	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Depth to saturated zone	1.00		
SvqG:					
Strawn	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
SvzG:					
Strawn	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
Rock outcrop	35	Not rated		Not rated	
ThrA:					
Treaty	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.53

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Uaz:					
Udorthents, sandy	100	Not rated		Not rated	
Uby:					
Udorthents, loamy	100	Not rated		Not rated	
UfnA:					
Urban land	50	Not rated		Not rated	
Crosby	45	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Depth to saturated zone	1.00		
UfoA:					
Urban land	50	Not rated		Not rated	
Cyclone	40	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.53
UfxA:					
Urban land	50	Not rated		Not rated	
Fincastle	42	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Restricted permeability	1.00		
UhuA:					
Urban land	50	Not rated		Not rated	
Mahalasville	34	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
UkbB:					
Urban land	50	Not rated		Not rated	
Miami	36	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.35
UkbC:					
Urban land	50	Not rated		Not rated	

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
UkbC:					
Miami	42	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	0.01	Seepage	0.53
UkbD:					
Urban land	50	Not rated		Not rated	
Miami	42	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	1.00	Seepage	0.53
UkpA:					
Urban land	50	Not rated		Not rated	
Ockley	40	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46		
UkpB:					
Urban land	50	Not rated		Not rated	
Ockley	40	Very limited		Very limited	
		Poor filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.35
UmyA:					
Urban land	50	Not rated		Not rated	
Treaty	44	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.53
UnhA:					
Urban land	50	Not rated		Not rated	
Wawaka	38	Very limited		Somewhat limited	
		Poor filtering capacity	1.00	Seepage	0.53
		Restricted permeability	1.00		
UnuA:					
Urban land	50	Not rated		Not rated	

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
UnuA:					
Whitaker------------	32	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
UnvB:					
Urban land----------	50	Not rated		Not rated	
Williamstown--------	31	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Restricted permeability	1.00	Slope	0.10
				Depth to saturated zone	0.01
Crosby--------------	18	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
		Depth to saturated zone	1.00	Slope	0.10
Usl:					
Udorthents, rubbish	100	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	
WdrA:					
Wawaka--------------	75	Very limited		Somewhat limited	
		Poor filtering capacity	1.00	Seepage	0.53
		Restricted permeability	1.00		
WdrB2:					
Wawaka--------------	75	Very limited		Somewhat limited	
		Poor filtering capacity	1.00	Seepage	0.53
		Restricted permeability	1.00	Slope	0.35
WdrC2:					
Wawaka--------------	75	Very limited		Very limited	
		Poor filtering capacity	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
		Slope	0.01		
WdrD2:					
Wawaka--------------	75	Very limited		Very limited	
		Poor filtering capacity	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
		Slope	1.00		

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
WmnA:					
Waynetown	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Poor filtering capacity	1.00	Seepage	0.53
		Restricted permeability	0.46		
WofB:					
Williamstown	62	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.10
		Restricted permeability	1.00	Depth to saturated zone	0.01
Crosby	36	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.10
		Depth to saturated zone	1.00		
WqvA:					
Westland	70	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
		Poor filtering capacity	1.00		
		Restricted permeability	0.46		
WtaA:					
Whitaker	62	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
XfuB2:					
Miami	60	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.35
Rainsville	30	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.81
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.35
XfuC2:					
Miami	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.81
		Restricted permeability	1.00	Seepage	0.53
		Slope	0.01		

Table 14A.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
XfuC2:					
Rainsville----------	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.81
		Slope	0.01	Seepage	0.53

Table 14B.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CbaA:							
Camden	85	Very limited		Not limited		Not limited	
		Seepage	1.00				
CudA:							
Crosby	93	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
CxdA:							
Cyclone	83	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
EdeAW:							
Eel	47	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00				
Beckville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
		Seepage	1.00	Seepage	1.00		
FdbA:							
Fincastle	84	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
FdhA:							
Fincastle	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Crosby	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
FexB2:							
Fox	80	Very limited		Very limited		Not limited	
		Seepage	1.00	Seepage	1.00		
FexC2:							
Fox	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Slope	0.01
		Slope	0.01	Slope	0.01		

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
MamA:							
Mahalasville	67	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
MaoA:							
Mahalaland	94	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
MjkAH:							
Medway	48	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00				
Beckville	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
		Seepage	1.00	Seepage	1.00		
MmoB3:							
Miami, severely eroded	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
MmoC3:							
Miami, severely eroded	56	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.47
		Slope	0.01			Slope	0.01
MmoD3:							
Miami, severely eroded	67	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
MnpB2:							
Miami	72	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
MnpC2:							
Miami	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.47
		Slope	0.01			Slope	0.01
MnpD2:							
Miami	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
ObxA:							
Ockley	81	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
ObxB2:							
Ockley	79	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
Ppu:							
Pits, sand and gravel	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.52
						Gravel content	0.22
Rock outcrop	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg	50	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Seepage	1.00				
		Too clayey	0.50				
Landes	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage	1.00	Seepage	1.00		
SigE2:							
Senachwine	73	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
SldAH:							
Shoals	68	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
		Seepage	1.00	Seepage	1.00		

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
SldAW:							
Shoals	68	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
		Seepage	1.00	Seepage	1.00		
SngA:							
Sleeth	87	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
SnlAP:							
Southwest	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
SocAH:							
Sloan	94	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
SocAW:							
Sloan	94	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
SteA:							
Starks	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
StjA:							
Starks	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
Crosby	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
SvqG:							
Strawn	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
SvzG:							
Strawn---------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop---------	35	Not rated		Not rated		Not rated	
ThrA:							
Treaty---------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Uaz:							
Udorthents, sandy---	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy---	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Crosby---------------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
UfoA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Cyclone--------------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
UfxA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Fincastle------------	42	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
UhuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Mahalasville--------	34	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
UkbB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami----------------	36	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
UkbC:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.47
		Slope	0.01			Slope	0.01
UkbD:							
Urban land----------	50	Not rated		Not rated		Not rated	
Miami---------------	42	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
UkpA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
UkpB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Ockley--------------	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
UmyA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Treaty--------------	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
UnhA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Wawaka--------------	38	Very limited		Not limited		Somewhat limited	
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
UnuA:							
Urban land----------	50	Not rated		Not rated		Not rated	
Whitaker------------	32	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Seepage	0.22
UnvB:							
Urban land----------	50	Not rated		Not rated		Not rated	

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
UnvB:							
Williamstown	31	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Crosby	18	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	
WdrA:							
Wawaka	75	Very limited		Not limited		Somewhat limited	
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
WdrB2:							
Wawaka	75	Very limited		Not limited		Somewhat limited	
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
WdrC2:							
Wawaka	75	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Slope	0.01	Too clayey	0.50
		Too clayey	0.50			Slope	0.01
		Slope	0.01				
WdrD2:							
Wawaka	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Slope	1.00
		Slope	1.00			Too clayey	0.50
		Too clayey	0.50				
WmnA:							
Waynetown	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
WofB:							
Williamstown	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Crosby	36	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50

Table 14B.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WqvA:							
Westland------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Too clayey	0.50
		Too clayey	0.50				
WtaA:							
Whitaker------------	62	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00			Seepage	0.22
XfuB2:							
Miami---------------	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
Rainsville----------	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
XfuC2:							
Miami---------------	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.47
		Slope	0.01			Slope	0.01
Rainsville----------	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
		Slope	0.01	Slope	0.01	Slope	0.01

Table 15A.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
CbaA:					
Camden	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CudA:					
Crosby	93	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CxdA:					
Cyclone	83	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EdeAW:					
Eel	47	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Beckville	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.06
		Thickest layer	0.00	Thickest layer	0.06
FdbA:					
Fincastle	84	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FdhA:					
Fincastle	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Crosby	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
FexB2:					
Fox	80	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.15	Bottom layer	0.86
FexC2:					
Fox	80	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.15	Bottom layer	0.86
MamA:					
Mahalasville	67	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.06

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
MaoA:					
Mahalaland	94	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.66	Bottom layer	0.84
MjkAH:					
Medway	48	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Beckville	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.06
		Thickest layer	0.00	Thickest layer	0.06
MmoB3:					
Miami, severely eroded	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MmoC3:					
Miami, severely eroded	56	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MmoD3:					
Miami, severely eroded	67	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MnpB2:					
Miami	72	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MnpC2:					
Miami	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MnpD2:					
Miami	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ObxA:					
Ockley	81	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.75	Bottom layer	0.84
ObxB2:					
Ockley	79	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.75	Bottom layer	0.84
Ppu:					
Pits, sand and gravel	80	Not rated		Not rated	

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
RqpG:					
Rodman	50	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.83	Bottom layer	0.50
Rock outcrop	40	Not rated		Not rated	
RtuAH:					
Rossburg	50	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.64	Bottom layer	0.31
Landes	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.06
		Thickest layer	0.00	Bottom layer	0.08
SigE2:					
Senachwine	73	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SldAH:					
Shoals	68	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
SldAW:					
Shoals	68	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
SngA:					
Sleeth	87	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.60	Bottom layer	0.84
SnlAP:					
Southwest	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SocAH:					
Sloan	94	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
SocAW:					
Sloan	94	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
SteA:					
Starks	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
StjA:					
Starks	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
StjA:					
Crosby	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
SvqG:					
Strawn	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SvzG:					
Strawn	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	35	Not rated		Not rated	
ThrA:					
Treaty	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Uaz:					
Udorthents, sandy	100	Not rated		Not rated	
Uby:					
Udorthents, loamy	100	Not rated		Not rated	
UfnA:					
Urban land	50	Not rated		Not rated	
Crosby	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
UfoA:					
Urban land	50	Not rated		Not rated	
Cyclone	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UfxA:					
Urban land	50	Not rated		Not rated	
Fincastle	42	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UhuA:					
Urban land	50	Not rated		Not rated	
Mahalasville	34	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.06
UkbB:					
Urban land	50	Not rated		Not rated	
Miami	36	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
UkbC:					
Urban land----------	50	Not rated		Not rated	
Miami---------------	42	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UkbD:					
Urban land----------	50	Not rated		Not rated	
Miami---------------	42	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UkpA:					
Urban land----------	50	Not rated		Not rated	
Ockley--------------	40	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.75	Bottom layer	0.84
UkpB:					
Urban land----------	50	Not rated		Not rated	
Ockley--------------	40	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.75	Bottom layer	0.84
UmyA:					
Urban land----------	50	Not rated		Not rated	
Treaty--------------	44	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UnhA:					
Urban land----------	50	Not rated		Not rated	
Wawaka--------------	38	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.68	Bottom layer	0.90
UnuA:					
Urban land----------	50	Not rated		Not rated	
Whitaker------------	32	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.07
UnvB:					
Urban land----------	50	Not rated		Not rated	
Williamstown--------	31	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Crosby--------------	18	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Usl:					
Udorthents, rubbish	100	Not rated		Not rated	

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
W:					
Water	100	Not rated		Not rated	
WdrA:					
Wawaka	75	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.68	Bottom layer	0.90
WdrB2:					
Wawaka	75	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.68	Bottom layer	0.90
WdrC2:					
Wawaka	75	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.68	Bottom layer	0.90
WdrD2:					
Wawaka	75	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.68	Bottom layer	0.90
WmnA:					
Waynetown	85	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.06
		Bottom layer	0.15	Bottom layer	0.84
WofB:					
Williamstown	62	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Crosby	36	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
WqvA:					
Westland	70	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.15	Bottom layer	0.84
WtaA:					
Whitaker	62	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.07
XfuB2:					
Miami	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rainsville	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
XfuC2:					
Miami	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15A.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
XfuC2:					
Rainsville----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15B.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CbaA:							
Camden	85	Fair		Good		Good	
		Water erosion	0.68				
		Low content of organic matter	0.88				
		Too acid	0.88				
CudA:							
Crosby	93	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acid	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				
CxdA:							
Cyclone	83	Fair		Poor		Poor	
		Carbonate content	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too acid	0.99	Low strength	0.00		
		Water erosion	0.99	Shrink-swell	0.87		
EdeAW:							
Eel	47	Fair		Fair		Fair	
		Water erosion	0.90	Depth to saturated zone	0.14	Depth to saturated zone	0.14
		Carbonate content	0.92	Low strength	0.22		
Beckville	40	Fair		Fair		Fair	
		Low content of organic matter	0.88	Depth to saturated zone	0.14	Depth to saturated zone	0.14
FdbA:							
Fincastle	84	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Water erosion	0.68	Low strength	0.00	Depth to saturated zone	0.00
		Carbonate content	0.74	Shrink-swell	0.97		
		Too acid	0.84				
FdhA:							
Fincastle	55	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Water erosion	0.68	Low strength	0.00	Depth to saturated zone	0.00
		Carbonate content	0.74	Shrink-swell	0.97		
		Too acid	0.84				

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
FdhA:							
Crosby----------------	30	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acid	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				
FexB2:							
Fox-------------------	80	Fair		Fair		Poor	
		Carbonate content	0.16	Shrink-swell	0.87	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Rock fragments	0.01
		Too acid	0.50				
		Droughty	0.94				
FexC2:							
Fox-------------------	80	Fair		Fair		Poor	
		Carbonate content	0.16	Shrink-swell	0.87	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Rock fragments	0.59
		Too acid	0.50				
		Droughty	0.95				
MamA:							
Mahalasville----------	67	Fair		Poor		Poor	
		Too clayey	0.82	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.92	Low strength	0.00	Too clayey	0.72
		Water erosion	0.99	Shrink-swell	0.99		
MaoA:							
Mahalaland------------	94	Fair		Poor		Poor	
		Carbonate content	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.82	Low strength	0.00	Too clayey	0.72
		Water erosion	0.99	Shrink-swell	0.99	Hard to reclaim (dense layer)	0.80
MjkAH:							
Medway----------------	48	Good		Fair		Fair	
				Depth to saturated zone	0.14	Depth to saturated zone	0.14
				Low strength	0.78		
				Shrink-swell	0.90		
Beckville-------------	40	Fair		Fair		Fair	
		Low content of organic matter	0.88	Depth to saturated zone	0.14	Depth to saturated zone	0.14
MmoB3:							
Miami, severely eroded--------------	55	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.84
		Droughty	0.70	Shrink-swell	0.96	Depth to saturated zone	0.89
		Too acid	0.80				
		Too clayey	0.98				
		Water erosion	0.99				

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
MmoC3:							
Miami, severely eroded	56	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.84
		Droughty	0.70	Shrink-swell	0.96	Depth to saturated zone	0.89
		Too acid	0.80				
		Too clayey	0.98				
		Water erosion	0.99				
MmoD3:							
Miami, severely eroded	67	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Carbonate content	0.32	Depth to saturated zone	0.89	Too clayey	0.57
		Droughty	0.70	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.84
		Too acid	0.80			Depth to saturated zone	0.89
		Too clayey	0.98				
		Water erosion	0.99				
MnpB2:							
Miami	72	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0.68				
		Too clayey	0.98				
		Droughty	0.99				
MnpC2:							
Miami	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0.68				
		Too clayey	0.98				
		Droughty	0.99				
MnpD2:							
Miami	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Carbonate content	0.32	Depth to saturated zone	0.89	Too clayey	0.57
		Too acid	0.50	Shrink-swell	0.95	Hard to reclaim (dense layer)	0.65
		Water erosion	0.68			Depth to saturated zone	0.89
		Too clayey	0.98				
		Droughty	0.99				
ObxA:							
Ockley	81	Fair		Fair		Poor	
		Carbonate content	0.01	Low strength	0.22	Hard to reclaim (dense layer)	0.00
		Too acid	0.74			Hard to reclaim (rock fragments)	0.68
		Low content of organic matter	0.88			Rock fragments	0.88
		Water erosion	0.90				

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
ObxB2:							
Ockley--------------	79	Fair		Fair		Poor	
		Carbonate content	0.01	Low strength	0.22	Hard to reclaim (dense layer)	0.00
		Too acid	0.74			Hard to reclaim (rock fragments)	0.68
		Low content of organic matter	0.88			Rock fragments	0.88
		Water erosion	0.90				
Ppu:							
Pits, sand and gravel-------------	80	Not rated		Not rated		Not rated	
RqpG:							
Rodman--------------	50	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Carbonate content	0.00			Hard to reclaim (dense layer)	0.00
						Rock fragments	0.50
Rock outcrop--------	40	Not rated		Not rated		Not rated	
RtuAH:							
Rossburg------------	50	Fair		Poor		Poor	
		Carbonate content	0.92	Low strength	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.99				
		Water erosion	0.99				
Landes--------------	40	Fair		Good		Good	
		Low content of organic matter	0.88				
		Carbonate content	0.92				
SigE2:							
Senachwine----------	73	Fair		Fair		Poor	
		Carbonate content	0.32	Low strength	0.22	Slope	0.00
		Too acid	0.92	Slope	0.50	Hard to reclaim (dense layer)	0.35
		Water erosion	0.99				
SldAH:							
Shoals--------------	68	Fair		Poor		Poor	
		Carbonate content	0.95	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.99				
SldAW:							
Shoals--------------	68	Fair		Poor		Poor	
		Carbonate content	0.95	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.99				
SngA:							
Sleeth--------------	87	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Carbonate content	0.46	Shrink-swell	0.87	Depth to saturated zone	0.00
		Water erosion	0.90			Rock fragments	0.12
		Too acid	0.95				
SnlAP:							
Southwest-----------	90	Fair		Poor		Poor	
		Too acid	0.84	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water ersoion	0.99	Low strength	0.00		
				Shrink-swell	0.99		

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
SocAH:							
Sloan	94	Fair		Poor		Poor	
		Carbonate content	0.26	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.98	Low strength	0.00	Too clayey	0.81
		Water erosion	0.99	Shrink-swell	0.98		
SocAW:							
Sloan	94	Fair		Poor		Poor	
		Carbonate content	0.26	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.98	Low strength	0.00	Too clayey	0.81
		Water erosion	0.99	Shrink-swell	0.98		
SteA:							
Starks	85	Fair		Poor		Poor	
		Too acid	0.80	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.80	Low strength	0.00	Too clayey	0.70
		Low content of organic matter	0.88	Shrink-swell	0.90		
		Water erosion	0.90				
		Too clayey	0.98				
StjA:							
Starks	55	Fair		Poor		Poor	
		Too acid	0.80	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.80	Low strength	0.00	Too clayey	0.70
		Low content of organic matter	0.88	Shrink-swell	0.90		
		Water erosion	0.90				
		Too clayey	0.98				
Crosby	35	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acid	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				
SvqG:							
Strawn	90	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Carbonate content	0.32			Carbonate content	0.32
		Water erosion	0.99				
SvzG:							
Strawn	55	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Carbonate content	0.32			Carbonate content	0.32
		Water erosion	0.99				
Rock outcrop	35	Not rated		Not rated		Not rated	

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
ThrA:							
Treaty	90	Fair		Poor		Poor	
		Carbonate content	0.46	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.82	Low strength	0.00	Too clayey	0.72
		Low content of organic matter	0.88	Shrink-swell	0.91		
		Water erosion	0.99				
		Too acid	0.99				
Uaz:							
Udorthents, sandy	100	Not rated		Not rated		Not rated	
Uby:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
UfnA:							
Urban land	50	Not rated		Not rated		Not rated	
Crosby	45	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acid	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				
UfoA:							
Urban land	50	Not rated		Not rated		Not rated	
Cyclone	40	Fair		Poor		Poor	
		Carbonate content	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too acid	0.99	Low strength	0.00		
		Water erosion	0.99	Shrink-swell	0.87		
UfxA:							
Urban land	50	Not rated		Not rated		Not rated	
Fincastle	42	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Water erosion	0.68	Low strength	0.00	Depth to saturated zone	0.00
		Carbonate content	0.74	Shrink-swell	0.97		
		Too acid	0.84				
UhuA:							
Urban land	50	Not rated		Not rated		Not rated	
Mahalasville	34	Fair		Poor		Poor	
		Too clayey	0.82	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.92	Low strength	0.00	Too clayey	0.72
		Water erosion	0.99	Shrink-swell	0.99		
UkbB:							
Urban land	50	Not rated		Not rated		Not rated	

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
UkbB:							
Miami	36	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0.68				
		Too clayey	0.98				
		Droughty	0.99				
UkbC:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0.68				
		Too clayey	0.98				
		Droughty	0.99				
UkbD:							
Urban land	50	Not rated		Not rated		Not rated	
Miami	42	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Carbonate content	0.32	Depth to saturated zone	0.89	Too clayey	0.57
		Too acid	0.50	Shrink-swell	0.95	Hard to reclaim (dense layer)	0.65
		Water erosion	0.68			Depth to saturated zone	0.89
		Too clayey	0.98				
		Droughty	0.99				
UkpA:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Fair		Fair		Poor	
		Carbonate content	0.01	Low strength	0.22	Hard to reclaim (dense layer)	0.00
		Too acid	0.74			Hard to reclaim (rock fragments)	0.68
		Low content of organic matter	0.88			Rock fragments	0.88
		Water erosion	0.90				
UkpB:							
Urban land	50	Not rated		Not rated		Not rated	
Ockley	40	Fair		Fair		Poor	
		Carbonate content	0.01	Low strength	0.22	Hard to reclaim (dense layer)	0.00
		Too acid	0.74			Hard to reclaim (rock fragments)	0.68
		Low content of organic matter	0.88			Rock fragments	0.88
		Water erosion	0.90				
UmyA:							
Urban land	50	Not rated		Not rated		Not rated	

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
UmyA:							
Treaty	44	Fair		Poor		Poor	
		Carbonate content	0.46	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.82	Low strength	0.00	Too clayey	0.72
		Low content of organic matter	0.88	Shrink-swell	0.91		
		Water erosion	0.99				
		Too acid	0.99				
UnhA:							
Urban land	50	Not rated		Not rated		Not rated	
Wawaka	38	Poor		Fair		Poor	
		Carbonate content	0.00	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Too clayey	0.60
		Water erosion	0.90				
		Too acid	0.92				
		Too clayey	0.92				
UnuA:							
Urban land	50	Not rated		Not rated		Not rated	
Whitaker	32	Fair		Poor		Poor	
		Carbonate content	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.12	Shrink-swell	0.99		
		Too acid	0.68				
		Water erosion	0.99				
UnvB:							
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	31	Fair		Poor		Fair	
		Carbonate content	0.20	Low strength	0.00	Depth to saturated zone	0.14
		Too acid	0.61	Depth to saturated zone	0.14	Hard to reclaim (dense layer)	0.97
		Low content of organic matter	0.88	Shrink-swell	0.94		
		Water erosion	0.90				
Crosby	18	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acidey	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				
Usl:							
Udorthents, rubbish	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
WdrA:							
Wawaka--------------	75	Poor		Fair		Poor	
		Carbonate content	0.00	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Too clayey	0.60
		Water erosion	0.90				
		Too acid	0.92				
		Too clayey	0.92				
WdrB2:							
Wawaka--------------	75	Poor		Fair		Poor	
		Carbonate content	0.00	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Too clayey	0.60
		Water erosion	0.90				
		Too acid	0.92				
		Too clayey	0.92				
WdrC2:							
Wawaka--------------	75	Poor		Fair		Poor	
		Carbonate content	0.00	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Too clayey	0.60
		Water erosion	0.90				
		Too acid	0.92				
		Too clayey	0.92				
WdrD2:							
Wawaka--------------	75	Poor		Fair		Poor	
		Carbonate content	0.00	Shrink-swell	0.96	Hard to reclaim (dense layer)	0.00
		Low content of organic matter	0.50			Slope	0.00
		Water erosion	0.90			Too clayey	0.60
		Too acid	0.92				
		Too clayey	0.92				
WmnA:							
Waynetown-----------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.16	Shrink-swell	0.92		
		Too acid	0.88				
		Water erosion	0.90				
WofB:							
Williamstown--------	62	Fair		Poor		Fair	
		Carbonate content	0.20	Low strength	0.00	Depth to saturated zone	0.14
		Too acid	0.61	Depth to saturated zone	0.14	Hard to reclaim (dense layer)	0.97
		Low content of organic matter	0.88	Shrink-swell	0.94		
		Water erosion	0.90				
Crosby--------------	36	Fair		Poor		Poor	
		Carbonate content	0.08	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
		Too clayey	0.32	Low strength	0.00	Depth to saturated zone	0.00
		Too acid	0.68	Shrink-swell	0.99	Too clayey	0.23
		Low content of organic matter	0.88				
		Water erosion	0.90				
		Droughty	0.99				

Table 15B.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
WqvA:							
Westland------------	70	Fair		Poor		Poor	
		Carbonate content	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.88			Hard to reclaim (dense layer)	0.01
		Too acid	0.95			Rock fragments	0.88
WtaA:							
Whitaker------------	62	Fair		Poor		Poor	
		Carbonate content	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.12	Shrink-swell	0.99		
		Too acid	0.68				
		Water erosion	0.99				
XfuB2:							
Miami---------------	60	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0.68				
		Too clayey	0.98				
		Droughty	0.99				
Rainsville----------	30	Fair		Fair		Poor	
		Too acid	0.32	Low strength	0.78	Hard to reclaim (dense layer)	0.00
		Carbonate content	0.32	Depth to saturated zone	0.89	Too acid	0.88
		Water erosion	0.68	Shrink-swell	0.94	Depth to saturated zone	0.89
		Low content of organic matter	0.88			Rock fragments	0.94
XfuC2:							
Miami---------------	65	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
		Carbonate content	0.32	Depth to saturated zone	0.89	Hard to reclaim (dense layer)	0.65
		Too acid	0.50	Shrink-swell	0.95	Depth to saturated zone	0.89
		Water erosion	0,68				
		Too clayey	0.98				
		Droughty	0.99				
Rainsville----------	25	Fair		Fair		Poor	
		Too acid	0.32	Low strength	0.78	Hard to reclaim (dense layer)	0.00
		Carbonate content	0.32	Depth to saturated zone	0.89	Too acid	0.88
		Water erosion	0.68	Shrink-swell	0.94	Depth to saturated zone	0.89
		Low content of organic matter	0.88			Rock fragments	0.94

Table 16.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated. Representative USDA textures and representative values for Unified and AASHTO classifications are indicated by an asterisk.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
CbaA:												
Camden----------	0-9	Silt loam*	CL-ML*, CL	A-4*	0	0	100	100	95-100	85-100	20-35	4-10
	9-29	Silty clay loam*, silt loam.	CL*	A-6*, A-4, A-7-6	0	0	100	100	95-100	85-100	30-50	5-25
	29-64	Loam*, fine sandy loam, sandy loam, silt loam, clay loam, sandy clay loam.	CL*, SC, SC-SM, SM	A-4*, A-2-4, A-6	0	0	85-100	85-100	85-100	25-65	10-40	NP-20
	64-80	Stratified sandy loam to silt loam*.	ML*, SM	A-4*, A-2-4	0	0	90-100	80-100	80-100	25-100	10-40	NP-10
CudA:												
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL* ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
CxdA:												
Cyclone---------	0-14	Silty clay loam*, silt loam.	CL*	A-6*	0	0	100	100	90-100	75-95	25-40	15-20
	14-20	Silt loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	100	100	90-100	80-95	35-55	15-40
	20-49	Silty clay loam*, silt loam.	CL*	A-7-6*, A-6	0	0	100	100	90-100	80-95	35-55	15-40
	49-60	Loam*, clay loam	CL*	A-7-6*, A-6	0	0	92-100	85-100	85-100	65-90	35-55	15-40
	60-80	Loam*, fine sandy loam.	CL*, CL-ML, ML, SC	A-4*, A-6	0-1	0-3	90-100	85-98	75-90	40-70	15-30	3-15
EdeAW:												
Eel-------------	0-10	Silt loam*, loam	CL*, CL-ML, ML	A-4*, A-6	0	0	100	100	90-100	70-100	20-40	3-15
	10-34	Loam*, silt loam, clay loam.	CL*, CL-ML, ML	A-6*, A-4, A-7-6	0	0	100	100	85-100	55-85	20-50	3-30
	34-42	Loam*, silt loam, clay loam, sandy loam.	CL*, CL-ML, ML	A-6*, A-4, A-7-6	0	0	90-100	90-100	85-100	55-85	20-50	3-30
	42-60	Stratified loamy sand to silty clay loam*.	CL*, ML, SC, SM	A-6*, A-2-4, A-4, A-7-6	0	0	90-100	80-100	80-100	20-75	0-50	NP-25
Beckville-------	0-11	Loam*, silt loam	CL-ML*, ML	A-4*	0	0	100	92-100	85-100	55-80	20-30	NP-10
	11-28	Fine sandy loam*, sandy loam, loam.	CL-ML*, ML, SC-SM, SM	A-4*, A-2-4	0	0	92-100	92-100	85-100	30-80	10-30	NP-10
	28-60	Sandy loam*, loam	CL-ML*, ML, SC-SM, SM	A-4*, A-2-4	0	0-1	92-100	80-100	75-100	25-80	10-30	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
FdbA:												
Fincastle-------	0-10	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam*, silt loam.	CL*, CH	A-7-6*, A-6, A-7	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam*, loam	CL*	A-6*, A-7	0	0-2	92-100	85-100	80-95	55-80	30-50	10-30
	50-59	Loam*, clay loam	CL*, CL-ML	A-6*, A-4	0	0-2	90-100	85-100	65-95	45-80	20-50	3-30
	59-80	Loam*, fine sandy loam.	CL*, CL-ML, SC, SC-SM	A-4*, A-6	0-1	0-5	90-100	80-95	65-90	45-70	15-30	3-15
FdhA:												
Fincastle-------	0-10	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam*, silt loam.	CL*, CH	A-7-6*, A-6, A-7	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam*, loam	CL*	A-6*, A-7	0	0-2	92-100	85-100	80-95	55-80	30-50	10-30
	50-59	Loam*, clay loam	CL*, CL-ML	A-6*, A-4	0	0-2	90-100	85-100	65-95	45-80	20-50	3-30
	59-80	Loam*, fine sandy loam.	CL*, CL-ML, SC, SC-SM	A-4*, A-6	0-1	0-5	90-100	80-95	65-90	45-70	15-30	3-15
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
FexB2:												
Fox-------------	0-8	Loam*, silt loam	CL-ML*, CL	A-4*	0	0	50-100	50-100	50-95	50-90	21-30	4-11
	8-18	Loam*, clay loam, sandy clay loam.	SC*, CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	18-25	Sandy loam*, clay loam, sandy clay loam, loam.	SC*, CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	25-36	Gravelly sandy loam*, clay loam, gravelly sandy clay loam, gravelly loam.	SC*, CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	36-80	Stratified gravelly loamy coarse sand to sand*.	SP-SM*, GP, GP-GM, SP	A-1-b*, A-3, A-2	0-3	0-10	35-100	5-100	5-90	2-10	0-0	NP.

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
FexC2:												
Fox-------------	0-7	Loam*, silt loam	CL-ML*, CL	A-4*	0	0	50-100	50-100	50-95	50-90	21-30	4-11
	7-18	Loam*, clay loam, sandy clay loam.	SC*, CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	18-25	Sandy loam*, clay loam, sandy clay loam, loam.	SC*, CL, GC	A-6*, A-2, A-7	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	25-36	Gravelly sandy loam*, clay loam, gravelly sandy clay loam, gravelly loam.	SC*, CL, GC	A-6*, A-7, A-2	0-1	0-5	65-100	50-100	30-95	15-80	28-44	9-22
	36-80	Stratified gravelly loamy coarse sand to sand*.	SP-SM*, GP, GP-GM, SP	A-1-b*, A-3, A-2	0-3	0-10	35-100	5-100	5-90	2-10	0-0	NP.
MamA:												
Mahalasville----	0-15	Silty clay loam*	CL*	A-7-6*, A-6, A-7	0	0	100	100	90-100	85-90	35-50	10-30
	15-40	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	100	100	95-100	85-90	35-45	15-25
	40-52	Loam*, silt loam, clay loam.	CL*, CL-ML	A-6*, A-4	0	0	92-100	92-100	80-100	50-85	22-40	5-20
	52-60	Stratified sand to sandy loam to loam to silt loam*.	CL*, CL-ML	A-4*	0	0	85-100	85-100	70-100	35-80	0-40	NP-20
MaoA:												
Mahalaland------	0-13	Silty clay loam*	CL*, CH, ML	A-7-6*, A-6	0	0	100	100	90-100	75-100	35-55	10-30
	13-33	Silty clay loam*	CL*, CH	A-7-6*	0	0	100	100	95-100	75-100	40-55	20-40
	33-46	Loam*, silt loam, clay loam, sandy clay loam.	SC-SM*, CL, SC	A-6*, A-4	0	0-1	85-100	85-100	45-85	20-65	20-60	5-30
	46-80	Stratified gravelly coarse sand to gravelly sand to gravelly loamy sand to sandy loam*.	SW-SM*, SW	A-1-b*	0-1	0-5	35-85	35-75	15-70	0-10	0-0	NP.
MjkAH:												
Medway----------	0-17	Silt loam*	CL*	A-6*	0	0	92-100	85-100	85-100	80-95	26-36	8-16
	17-21	Silty clay loam*, clay loam.	CL*	A-6*	0	0	92-100	85-100	85-100	80-95	34-40	6-20
	21-56	Loam*, clay loam, silt loam.	CL*	A-6*	0	0	95-100	85-100	70-95	50-80	34-40	14-20
	56-80	Stratified sandy loam to loam*.	CL*, CL-ML, SC, SC-SM	A-4*, A-2-4, A-2-6, A-6	0	0	75-100	50-100	50-95	25-75	23-38	6-18
Beckville-------	0-11	Loam*, silt loam	CL-ML*, ML	A-4*	0	0	100	92-100	85-100	55-80	20-30	NP-10
	11-28	Fine sandy loam*, sandy loam, loam.	CL-ML*, ML, SC-SM, SM	A-4*, A-2-4	0	0	92-100	92-100	85-100	30-80	10-30	NP-10
	28-60	Sandy loam*, loam	CL-ML*, ML, SC-SM, SM	A-4*, A-2-4	0	0-1	92-100	80-100	75-100	25-80	10-30	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
MmoB3: Miami, severely eroded---------	0-6	Clay loam*	CL*	A-6*	0	0	95-100	92-100	75-95	60-85	30-40	10-22
	6-29	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-100	75-95	55-85	30-50	11-31
	29-34	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	34-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
MmoC3: Miami, severely eroded---------	0-6	Clay loam*	CL*	A-6*	0	0	95-100	92-100	75-95	60-85	30-40	10-22
	6-29	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-100	75-95	55-85	30-50	11-31
	29-34	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	34-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
MmoD3: Miami, severely erdoded--------	0-6	Clay loam*	CL*	A-6*	0	0	95-100	92-100	75-95	60-85	30-40	10-22
	6-29	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-100	75-95	55-85	30-50	11-31
	29-34	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	34-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
MnpB2: Miami-----------	0-8	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	8-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
MnpC2: Miami-----------	0-7	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
MnpD2:												
Miami-----------	0-7	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
ObxA:												
Ockley----------	0-10	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-30	4-11
	10-15	Silt loam*, loam	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-32	4-13
	15-18	Silt loam*, loam, silty clay loam.	CL*, SC, SC-SM	A-6*, A-7-6	0	0-1	90-100	85-100	70-100	30-95	32-43	13-21
	18-37	Clay loam*, sandy clay loam, loam.	CL*, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	80-100	70-100	30-95	32-43	5-21
	37-49	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC*, CL	A-6*, A-2, A-4, A-7-6	0	0-2	70-95	40-85	25-75	15-60	21-43	4-21
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM*, GP, GW-GM, SW	A-1-a*, A-1	0-2	0-10	35-85	20-75	10-30	2-10	0-0	NP.
ObxB2:												
Ockley----------	0-8	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-30	4-11
	8-15	Silt loam*, loam	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-32	4-13
	15-18	Silt loam*, loam, silty clay loam.	CL*, SC, SC-SM	A-6*, A-7-6	0	0-1	90-100	85-100	70-100	30-95	32-43	13-21
	18-37	Clay loam*, sandy clay loam, loam.	CL*, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	80-100	70-100	30-95	32-43	5-21
	37-49	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC*, CL	A-6*, A-2, A-4, A-7-6	0	0-2	70-95	40-85	25-75	15-60	21-43	4-21
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM*, GP, GW-GM, SW	A-1-a*, A-1	0-2	0-10	35-85	20-75	10-30	2-10	0-0	NP.
Ppu:												
Pits, sand and gravel.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
RqpG:												
Rodman----------	0-10	Sandy loam*	SC-SM*, CL, ML, SC, SM	A-2-4*	0	0-2	85-100	80-85	50-80	25-65	15-30	3-10
	10-18	Very gravelly coarse sandy loam*, loam, gravelly sandy loam, coarse sandy loam.	SC-SM*, SC, SM	A-1-b*, A-4	0	0-2	70-100	45-85	13-85	10-45	15-30	NP-10
	18-80	Stratified very gravelly loamy coarse sand to extremely gravelly loamy coarse sand to very gravelly sand*.	SW-SM*, GP-GM, GW-GM, SP-SM	A-1-a*, A-1	0	1-5	30-70	10-50	10-40	0-10	0-0	NP.
Rock outcrop.												
RtuAH:												
Rossburg--------	0-11	Silt loam*, silty clay loam.	CL*	A-6*	0	0	95-100	92-100	80-100	60-90	30-39	11-18
	11-31	Silty clay loam*, silt loam, loam, clay loam.	CL*	A-6*	0	0	90-100	85-100	80-100	60-90	30-43	11-21
	31-44	Sandy clay loam*, fine sandy loam, loam, sandy loam, silt loam, clay loam, silty clay loam.	CL*	A-6*, A-4	0	0	90-100	85-100	70-95	50-80	28-41	9-20
	44-61	Stratified sand to loamy sand to gravelly sandy loam to loam to silt loam*.	SC-SM*, CL-ML, SM	A-2-4*, A-1-b, A-4	0	0	78-100	70-100	40-90	15-70	10-25	2-7
	61-80	Stratified sand to very gravelly loamy coarse sand to loamy sand to sandy loam to loam to silt loam*.	SC-SM*, CL-ML, SM	A-2-4*, A-1-b, A-4	0	0	65-100	35-100	20-90	10-70	10-25	2-7
Landes----------	0-19	Fine sandy loam*, sandy loam.	SC-SM*, SC, SM	A-4*, A-2-4	0	0	100	70-100	70-100	30-50	0-25	NP-10
	19-31	Fine sandy loam*, loam, sandy loam, loamy fine sand.	SC*, SC-SM, SM	A-4*, A-2-4, A-6	0	0	100	85-100	80-100	20-45	0-40	NP-15
	31-36	Stratified loamy sand to silt loam*.	SC*, SM	A-2-4*, A-4, A-6	0	0	100	85-100	70-100	5-45	0-40	NP-15
	36-60	Stratified loamy sand to silt loam*.	SC*, SM	A-2-4*, A-4, A-6	0	0	100	85-100	70-100	5-45	0-40	NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
SigE2:												
Senachwine------	0-5	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	95-100	85-100	55-75	21-35	4-15
	5-28	Clay loam*, silty clay loam.	CL*	A-6*	0	0	92-100	85-100	85-100	55-90	35-41	15-20
	28-36	Loam*, clay loam	CL*, CL-ML	A-6*, A-4	0-1	0-1	92-100	85-100	85-100	55-80	26-39	6-18
	36-80	Loam*, fine sandy loam.	CL-ML*, CL, ML	A-4*	0-1	0-5	90-100	85-100	75-100	45-70	20-28	4-9
SldAH:												
Shoals----------	0-8	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0	100	95-100	90-100	50-100	21-35	4-15
	8-33	Loam*, silt loam, clay loam.	CL*, CL-ML	A-6*, A-4, A-7-6	0	0	100	95-100	75-100	50-100	25-42	7-21
	33-60	Stratified sand to silt loam*.	SC*, CL-ML, ML, SM, CL	A-4*, A-2-4, A-2-6, A-6	0	0-3	90-100	80-100	50-100	20-100	0-37	NP-16
SldAW:												
Shoals----------	0-8	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0	100	95-100	90-100	50-100	21-35	4-15
	8-33	Loam*, silt loam, clay loam.	CL*, CL-ML	A-6*, A-4, A-7-6	0	0	100	95-100	75-100	50-100	25-42	7-21
	33-60	Stratified sand to silt loam*.	SC*, CL-ML, ML, SM, CL	A-4*, A-2-4, A-2-6, A-6	0	0-3	90-100	80-100	50-100	20-100	0-37	NP-16
SngA:												
Sleeth----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	85-100	75-100	50-90	20-40	3-15
	8-19	Silty clay loam*, clay loam.	CL*	A-6*	0	0	95-100	85-100	75-100	70-95	35-45	15-25
	19-43	Gravelly clay loam*, gravelly sandy clay loam, gravelly sandy loam.	SC*, CL	A-2-6*, A-6, A-7	0	0-5	70-92	55-75	30-70	15-55	30-43	11-21
	43-80	Very gravelly coarse sand, gravelly sand, sand, gravelly loamy coarse sand*.	SW-SM*, SW	A-1-b*	0-1	0-8	75-92	30-85	18-35	0-10	0-0	NP.
SnlAP:												
Southwest-------	0-10	Silt loam*	ML*, CL	A-4*, A-6	0	0	100	100	95-100	75-100	27-39	3-15
	10-23	Silty clay loam*, silt loam.	ML*, CL	A-4*, A-6	0	0	100	100	95-100	75-100	27-39	3-15
	23-34	Silty clay loam*, silt loam, loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	85-100	50-100	20-45	3-33
	34-45	Silty clay loam*, silt loam, loam.	CL*, CL-ML, ML	A-6*, A-4, A-7-6	0	0	95-100	92-100	85-100	50-100	20-45	3-33
	45-75	Silty clay loam*, silt loam.	CL*, CL-ML, ML	A-6*, A-4, A-7-6	0	0	95-100	92-100	85-100	65-100	25-45	3-28
	75-80	Silt loam*, loam, clay loam.	CL*, CL-ML, ML	A-6*, A-4, A-7-6	0	0-1	95-100	92-100	75-100	50-100	20-45	NP-24

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
SocAH:												
Sloan-----------	0-15	Silty clay loam*	CL*	A-6*, A-7	0	0	100	92-100	85-100	70-95	35-45	12-20
	15-34	Clay loam*, silty clay loam, silt loam, loam.	CL*, ML	A-6*, A-4, A-7	0	0	100	92-100	80-100	70-95	30-45	8-18
	34-45	Clay loam*, silty clay loam, silt loam, loam.	CL*, ML	A-6*, A-4, A-7	0	0	100	80-100	80-100	70-95	30-45	8-18
	45-60	Stratified sandy loam to silt loam to gravelly clay loam to silty clay loam*.	CL*, ML	A-4*, A-6	0	0	95-100	50-100	50-95	30-90	25-40	3-15
SocAW:												
Sloan-----------	0-15	Silty clay loam*	CL*	A-6*, A-7	0	0	100	92-100	85-100	70-95	35-45	12-20
	15-34	Clay loam*, silty clay loam, silt loam, loam.	CL*, ML	A-6*, A-4, A-7	0	0	100	92-100	80-100	70-95	30-45	8-18
	34-45	Clay loam*, silty clay loam, silt loam, loam.	CL*, ML	A-6*, A-4, A-7	0	0	100	80-100	80-100	70-95	30-45	8-18
	45-60	Stratified sandy loam to silt loam to gravelly clay loam to silty clay loam*.	CL*, ML	A-4*, A-6	0	0	95-100	50-100	50-95	30-90	25-40	3-15
SteA:												
Starks----------	0-10	Silt loam*	CL-ML*, CL	A-4*	0	0	100	100	90-100	80-100	20-30	4-10
	10-38	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	38-56	Loam*, clay loam, sandy loam, silty clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-4	0	0	92-100	92-100	85-100	40-80	15-45	NP-25
	56-80	Stratified loamy sand to silt loam to sandy clay loam*.	CL*, ML, SC, SM	A-4*, A-2	0	0	85-100	80-100	80-100	15-100	0-30	NP-10
StjA:												
Starks----------	0-10	Silt loam*	CL-ML*, CL	A-4*	0	0	100	100	90-100	80-100	20-30	4-10
	10-38	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	38-56	Loam*, clay loam, sandy loam, silty clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-4	0	0	92-100	92-100	85-100	40-80	15-45	NP-25
	56-80	Stratified loamy sand to silt loam to sandy clay loam*.	CL*, ML, SC, SM	A-4*, A-2	0	0	85-100	80-100	80-100	15-100	0-30	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				*Pct*	*Pct*					*Pct*	
StjA:												
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
SvqG:												
Strawn----------	0-5	Loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	90-100	85-95	65-90	15-40	3-15
	5-9	Loam*, silt loam	CL*, CL-ML	A-6*, A-4	0-1	0-5	95-100	90-100	80-95	55-80	20-40	5-25
	9-22	Clay loam*, loam, silty clay loam.	CL*, CL-ML	A-6*, A-4	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	22-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-100	80-95	65-90	45-70	15-30	3-15
SvzG:												
Strawn----------	0-5	Loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	90-100	85-95	65-90	15-40	3-15
	5-9	Loam*, silt loam	CL*, CL-ML	A-6*, A-4	0-1	0-5	95-100	90-100	80-95	55-80	20-40	5-25
	9-22	Clay loam*, loam, silty clay loam.	CL*, CL-ML	A-6*, A-4	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	22-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-100	80-95	65-90	45-70	15-30	3-15
Rock outcrop.												
ThrA:												
Treaty----------	0-14	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	85-100	80-95	35-50	10-30
	14-36	Silty clay loam*, silt loam.	CL*	A-6*	0	0	100	100	95-100	85-95	35-45	15-25
	36-59	Loam*, clay loam, silty clay loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	85-98	80-95	55-80	20-50	5-30
	59-70	Loam*, fine sandy loam.	CL*, CL-ML	A-4*, A-6	0	0-1	90-100	85-98	75-90	45-70	15-30	3-15
Uaz:												
Udorthents, sandy.												
Uby:												
Udorthents, loamy.												
UfnA:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
UfnA:												
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
UfoA:												
Urban land.												
Cyclone---------	0-14	Silty clay loam*, silt loam.	CL*	A-6*	0	0	100	100	90-100	75-95	25-40	15-20
	14-20	Silt loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	100	100	90-100	80-95	35-55	15-40
	20-49	Silty clay loam*, silt loam.	CL*	A-7-6*, A-6	0	0	100	100	90-100	80-95	35-55	15-40
	49-60	Loam*, clay loam	CL*	A-7-6*, A-6	0	0	92-100	85-100	85-100	65-90	35-55	15-40
	60-80	Loam*, fine sandy loam.	CL*, CL-ML, ML, SC	A-4*, A-6	0-1	0-3	90-100	85-98	75-90	40-70	15-30	3-15
UfxA:												
Urban land.												
Fincastle-------	0-10	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam*, silt loam.	CL*, CH	A-7-6*, A-6, A-7	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam*, loam	CL*	A-6*, A-7	0	0-2	92-100	85-100	80-95	55-80	30-50	10-30
	50-59	Loam*, clay loam	CL*, CL-ML	A-6*, A-4	0	0-2	90-100	85-100	65-95	45-80	20-50	3-30
	59-80	Loam*, fine sandy loam.	CL*, CL-ML, SC, SC-SM	A-4*, A-6	0-1	0-5	90-100	80-95	65-90	45-70	15-30	3-15
UhuA:												
Urban land.												
Mahalasville----	0-15	Silty clay loam*	CL*	A-7-6*, A-6, A-7	0	0	100	100	90-100	85-90	35-50	10-30
	15-40	Silty clay loam*, silt loam.	CL*	A-6*, A-7	0	0	100	100	95-100	85-90	35-45	15-25
	40-52	Loam*, silt loam, clay loam.	CL*, CL-ML	A-6*, A-4	0	0	92-100	92-100	80-100	50-85	22-40	5-20
	52-60	Stratified sand to sandy loam to loam to silt loam*.	CL*, CL-ML	A-4*	0	0	85-100	85-100	70-100	35-80	0-40	NP-20
UkbB:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UkbB:												
Miami-----------	0-8	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	8-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
UkbC:												
Urban land.												
Miami-----------	0-7	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
UkbD:												
Urban land.												
Miami-----------	0-7	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
UkpA:												
Urban land.												
Ockley----------	0-10	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-30	4-11
	10-15	Silt loam*, loam	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-32	4-13
	15-18	Silt loam*, loam, silty clay loam.	CL*, SC, SC-SM	A-6*, A-7-6	0	0-1	90-100	85-100	70-100	30-95	32-43	13-21
	18-37	Clay loam*, sandy clay loam, loam.	CL*, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	80-100	70-100	30-95	32-43	5-21
	37-49	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC*, CL	A-6*, A-2, A-4, A-7-6	0	0-2	70-95	40-85	25-75	15-60	21-43	4-21
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM*, GP, GW-GM, SW	A-1-a*, A-1	0-2	0-10	35-85	20-75	10-30	2-10	0-0	NP.
UkpB:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
UkpB:												
Ockley----------	0-8	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-30	4-11
	8-15	Silt loam*, loam	CL*, CL-ML	A-4*, A-6	0	0	95-100	85-100	70-100	50-90	21-32	4-13
	15-18	Silt loam*, loam, silty clay loam.	CL*, SC, SC-SM	A-6*, A-7-6	0	0-1	90-100	85-100	70-100	30-95	32-43	13-21
	18-37	Clay loam*, sandy clay loam, loam.	CL*, SC, SC-SM	A-6*, A-2, A-4, A-7-6	0	0-1	90-100	80-100	70-100	30-95	32-43	5-21
	37-49	Gravelly sandy clay loam*, gravelly sandy loam, clay loam.	SC*, CL	A-6*, A-2, A-4, A-7-6	0	0-2	70-95	40-85	25-75	15-60	21-43	4-21
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM*, GP, GW-GM, SW	A-1-a*, A-1	0-2	0-10	35-85	20-75	10-30	2-10	0-0	NP.
UmyA:												
Urban land.												
Treaty----------	0-14	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	85-100	80-95	35-50	10-30
	14-36	Silty clay loam*, silt loam.	CL*	A-6*	0	0	100	100	95-100	85-95	35-45	15-25
	36-59	Loam*, clay loam, silty clay loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	85-98	80-95	55-80	20-50	5-30
	59-70	Loam*, fine sandy loam.	CL*, CL-ML	A-4*, A-6	0	0-1	90-100	85-98	75-90	45-70	15-30	3-15
UnhA:												
Urban land.												
Wawaka----------	0-7	Silt loam*	CL*, ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	NP-17
	7-19	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6	0	0	95-100	95-100	70-100	50-90	35-50	15-30
	19-43	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	43-58	Sandy clay loam*, loam, clay loam.	CL*, CL-ML, SC	A-6*, A-4	0-1	0-5	85-100	85-98	55-85	40-65	20-40	5-25
	58-94	Loam*, gravelly loam.	CL*, ML, SC	A-6*, A-4	0-1	0-5	80-100	80-92	55-80	40-55	15-30	NP-15
	94-106	Stratified loamy fine sand to gravelly fine sand to very gravelly coarse sandy loam*.	SC*, GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-100	25-100	25-80	15-35	15-35	NP-20
	106-118	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM*, GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-0	NP.
UnuA:												
Urban land.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UnuA:												
Whitaker--------	0-10	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	92-100	92-100	90-100	70-90	15-25	3-20
	10-20	Silty clay loam*, clay loam.	CL*, CL-ML, ML	A-4*, A-6	0	0	92-100	92-100	75-95	55-85	15-40	3-20
	20-37	Sandy clay loam*, clay loam, sandy loam.	CL*, CL-ML	A-6*, A-4	0	0	92-100	92-100	80-90	40-75	20-50	5-30
	37-48	Sandy loam*, loam, silt loam.	CL*, CL-ML	A-4*, A-6	0	0	92-100	92-100	65-95	40-75	20-40	5-20
	48-80	Stratified sand to sandy loam to loam to silt loam*.	SC-SM*, CL-ML, ML, SM	A-2-4*, A-4	0	0	85-100	80-100	55-95	10-85	0-40	NP-10
UnvB:												
Urban land.												
Williamstown----	0-9	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	98-100	95-100	80-98	75-90	22-35	3-12
	9-33	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6, A-7	0	0-3	95-100	85-98	70-90	55-75	35-48	15-30
	33-37	Loam*, fine sandy loam.	CL*, CL-ML	A-6*, A-4	0	0-3	85-98	75-90	70-90	50-70	20-34	7-16
	37-80	Loam*, fine sandy loam.	CL*, CL-ML, SC, SC-SM, ML	A-4*, A-6	0-1	0-3	85-98	75-90	65-80	40-60	15-30	3-15
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
Usl:												
Udorthents, rubbish.												
W:												
Water.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
WdrA:												
Wawaka----------	0-7	Silt loam*	CL*, ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	NP-17
	7-19	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6	0	0	95-100	95-100	70-100	50-90	35-50	15-30
	19-43	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	43-58	Sandy clay loam*, loam, clay loam.	CL*, CL-ML, SC	A-6*, A-4	0-1	0-5	85-100	85-98	55-85	40-65	20-40	5-25
	58-94	Loam*, gravelly loam.	CL*, ML, SC	A-6*, A-4	0-1	0-5	80-100	80-92	55-80	40-55	15-30	NP-15
	94-106	Stratified loamy fine sand to gravelly fine sand to very gravelly coarse sandy loam*.	SC*, GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-100	25-100	25-80	15-35	15-35	NP-20
	106-118	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM*, GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-0	NP.
WdrB2:												
Wawaka----------	0-7	Silt loam*	CL*, ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	NP-17
	7-19	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6	0	0	95-100	95-100	70-100	50-90	35-50	15-30
	19-43	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	43-58	Sandy clay loam*, loam, clay loam.	CL*, CL-ML, SC	A-6*, A-4	0-1	0-5	85-100	85-98	55-85	40-65	20-40	5-25
	58-94	Loam*, gravelly loam.	CL*, ML, SC	A-6*, A-4	0-1	0-5	80-100	80-92	55-80	40-55	15-30	NP-15
	94-106	Stratified loamy fine sand to gravelly fine sand to very gravelly coarse sandy loam*.	SC*, GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-100	25-100	25-80	15-35	15-35	NP-20
	106-118	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM*, GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-0	NP.
WdrC2:												
Wawaka----------	0-7	Silt loam*	CL*, ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	NP-17
	7-19	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6	0	0	95-100	95-100	70-100	50-90	35-50	15-30
	19-43	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	43-58	Sandy clay loam*, loam, clay loam.	CL*, CL-ML, SC	A-6*, A-4	0-1	0-5	85-100	85-98	55-85	40-65	20-40	5-25
	58-94	Loam*, gravelly loam.	CL*, ML, SC	A-6*, A-4	0-1	0-5	80-100	80-92	55-80	40-55	15-30	NP-15
	94-106	Stratified loamy fine sand to gravelly fine sand to very gravelly coarse sandy loam*.	SC*, GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-100	25-100	25-80	15-35	15-35	NP-20
	106-118	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM*, GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-0	NP.

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
WdrD2:												
Wawaka----------	0-7	Silt loam*	CL*, ML	A-4*, A-6	0	0	95-100	95-100	90-100	70-90	23-40	NP-17
	7-19	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6	0	0	95-100	95-100	70-100	50-90	35-50	15-30
	19-43	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6	0	0	90-100	85-100	70-95	50-85	35-50	15-30
	43-58	Sandy clay loam*, loam, clay loam.	CL*, CL-ML, SC	A-6*, A-4	0-1	0-5	85-100	85-98	55-85	40-65	20-40	5-25
	58-94	Loam*, gravelly loam.	CL*, ML, SC	A-6*, A-4	0-1	0-5	80-100	80-92	55-80	40-55	15-30	NP-15
	94-106	Stratified loamy fine sand to gravelly fine sand to very gravelly coarse sandy loam*.	SC*, GC, GM, SM	A-2-4*, A-1-b	0-1	0-5	50-100	25-100	25-80	15-35	15-35	NP-20
	106-118	Stratified fine sand to very gravelly loamy coarse sand*.	SP-SM*, GP, GP-GM, SP	A-1-a*, A-3, A-1-b	0-1	0-5	45-100	25-100	5-80	0-15	0-0	NP.
WmnA:												
Waynetown-------	0-15	Silt loam*	CL*, CL-ML	A-4*	0	0	92-100	92-100	85-100	75-95	20-30	4-15
	15-32	Silty clay loam*	CL*	A-6*	0	0	92-100	92-100	90-100	75-95	35-45	15-25
	32-45	Loam*, clay loam	CL*	A-6*, A-4	0	0	92-100	80-99	75-95	50-65	20-50	5-30
	45-75	Gravelly sandy clay loam*, gravelly loam, gravelly clay loam.	SC*, CL, GC	A-6*, A-2-4, A-2-6, A-4	0	0-3	65-92	55-92	45-75	20-55	20-50	5-20
	75-80	Stratified gravelly coarse sand to gravelly loamy coarse sand*.	SW-SM*, SP, SP-SM, SW	A-1-b*, A-1	0-1	0-5	35-85	35-85	15-40	0-10	0-0	NP.
WofB:												
Williamstown----	0-9	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	98-100	95-100	80-98	75-90	22-35	3-12
	9-33	Clay loam*, silty clay loam.	CL*	A-7-6*, A-6, A-7	0	0-3	95-100	85-98	70-90	55-75	35-48	15-30
	33-37	Loam*, fine sandy loam.	CL*, CL-ML	A-6*, A-4	0	0-3	85-98	75-90	70-90	50-70	20-34	7-16
	37-80	Loam*, fine sandy loam.	CL*, CL-ML, SC, SC-SM, ML	A-4*, A-6	0-1	0-3	85-98	75-90	65-80	40-60	15-30	3-15
Crosby----------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam*, silty clay loam.	CL*, CL-ML, ML	A-6*, A-4	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam*, silty clay loam, silty clay, clay.	CL*, CH	A-7-6*, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam*, fine sandy loam, clay loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
WqvA:												
Westland--------	0-10	Silty clay loam*	CL*	A-7-6*, A-6, A-7	0	0	92-100	92-100	85-100	75-95	30-55	10-30
	10-21	Silty clay loam*, clay loam.	CL*	A-7-6*, A-6, A-7	0	0	92-100	92-100	70-95	55-90	35-55	15-35
	21-37	Clay loam*, loam, gravelly sandy clay loam, very gravelly clay loam.	SC*, CL, ML, SM	A-6*, A-4, A-2-4, A-2-6	0	0-8	65-100	45-92	45-90	25-75	20-40	3-18
	37-47	Loam*, gravelly sandy clay loam, very gravelly clay loam, sandy loam.	SC*, CL, ML, SM	A-6*, A-4 A-2-4, A-2-6	0	0-8	65-100	45-92	35-75	25-50	20-40	3-18
	47-80	Stratified gravelly coarse sand to very gravelly loamy coarse sand*.	SW-SM*, GP, SP-SM, SW	A-1-b*, A-1	0-1	0-5	35-90	35-85	15-50	0-10	0-0	NP.
WtaA:												
Whitaker--------	0-10	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	92-100	92-100	90-100	70-90	15-25	3-20
	10-20	Silty clay loam*, clay loam.	CL*, CL-ML, ML	A-4*, A-6	0	0	92-100	92-100	75-95	55-85	15-40	3-20
	20-37	Sandy clay loam*, clay loam, sandy loam.	CL*, CL-ML	A-6*, A-4	0	0	92-100	92-100	80-90	40-75	20-50	5-30
	37-48	Sandy loam*, loam, silt loam.	CL*, CL-ML	A-4*, A-6	0	0	92-100	92-100	65-95	40-75	20-40	5-20
	48-80	Stratified sand to sandy loam to loam to silt loam*.	SC-SM*, CL-ML, ML, SM	A-2-4*, A-4	0	0	85-100	80-100	55-95	10-85	0-40	NP-10
XfuB2:												
Miami-----------	0-8	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	8-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
Rainsville------	0-8	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	8-13	Silt loam*, silty clay loam.	CL*, CL-ML	A-6*, A-4	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Loam*, sandy clay loam, clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-4	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Loam*, clay loam, sandy clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam*	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	90-100	80-95	55-70	20-40	5-25
	48-60	Loam*	CL*, CL-ML, SC, SM	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
XfuC2:												
Miami-----------	0-7	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0	95-100	92-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam*, silt loam.	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	92-100	85-98	75-90	25-55	5-35
	13-31	Clay loam*, silty clay loam.	CL*	A-6*, A-7-6	0-1	0-5	90-100	85-98	75-95	55-85	30-50	11-31
	31-36	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-6*, A-4	0-1	0-5	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam*, fine sandy loam.	CL*, ML, SC, SM	A-4*, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	3-15
Rainsville------	0-6	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	6-13	Silt loam*, silty clay loam.	CL*, CL-ML	A-6*, A-4	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Loam*, sandy clay loam, clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-4	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Loam*, clay loam, sandy clay loam.	CL*, CL-ML, SC, SC-SM	A-6*, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam*	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	90-100	80-95	55-70	20-40	5-25
	48-60	Loam*	CL*, CL-ML, SC, SM	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15

Table 17A.--Physical Properties of the Soils

(Absence of an entry indicates that data were not estimated. Low, representative, and high values of the properties are separated by a hyphen.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
CbaA:									
Camden------------------	0-9	5-10-15	62-72-80	15-18-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-1.5-2.0
	9-29	5-8 -15	50-64-70	25-28-35	1.40-1.50-1.70	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	29-64	30-40-60	20-42-60	10-18-30	1.40-1.50-1.70	0.60-1.30-2.00	0.11-0.17-0.22	0.00-1.50-2.90	0.5-0.8-1.0
	64-80	30-40-60	20-48-60	5-12-20	1.45-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
CudA:									
Crosby------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
CxdA:									
Cyclone-----------------	0-14	10-18-20	50-54-67	25-28-35	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	3.00-4.50-5.90	3.0-4.5-6.0
	14-20	2-12-19	44-62-66	25-26-35	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	20-49	2-12-19	44-58-66	25-30-35	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	49-60	15-35-45	40-41-60	15-24-30	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	60-80	30-40-56	34-45-50	9-15-25	1.60-1.65-1.75	0.20-0.40-0.60	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
EdeAW:									
Eel---------------------	0-10	20-26-35	45-54-60	15-20-26	1.35-1.45-1.45	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-34	25-45-60	20-32-60	15-23-30	1.40-1.50-1.55	0.60-1.30-2.00	0.15-0.18-0.20	0.00-1.50-2.90	1.0-2.0-3.0
	34-42	25-45-60	20-32-60	15-23-30	1.40-1.50-1.55	0.60-1.30-2.00	0.15-0.18-0.20	0.00-1.50-2.90	1.0-2.0-3.0
	42-60	18-50-71	20-32-46	10-18-35	1.45-1.55-1.60	0.60-3.30-6.00	0.15-0.18-0.20	0.00-1.50-2.90	0.5-1.2-2.0
Beckville---------------	0-11	30-40-50	30-48-60	7-12-18	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	2.0-3.0-4.0
	11-28	30-60-80	20-28-50	7-12-18	1.30-1.40-1.50	2.00-4.00-6.00	0.13-0.16-0.19	0.00-1.50-2.90	1.0-1.5-2.0
	28-60	30-60-80	20-28-50	7-12-18	1.30-1.45-1.60	2.00-4.00-6.00	0.11-0.15-0.18	0.00-1.50-2.90	0.5-0.8-1.0
FdbA:									
Fincastle---------------	0-10	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-13	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	13-27	5-10-20	45-61-65	23-29-35	1.40-1.50-1.70	0.60-1.30-2.00	0.14-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	27-50	25-40-50	25-32-45	25-28-32	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.16-0.16	3.00-4.50-5.90	0.0-0.2-0.5
	50-59	30-45-50	25-35-45	12-20-30	1.75-1.80-2.00	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	59-80	35-45-60	20-40-50	12-15-26	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
FdhA:									
Fincastle----------------	0-10	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-13	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	13-27	5-10-20	45-61-65	23-29-35	1.40-1.50-1.70	0.60-1.30-2.00	0.14-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	27-50	25-40-50	25-32-45	25-28-32	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.16-0.16	3.00-4.50-5.90	0.0-0.2-0.5
	50-59	30-45-50	25-35-45	12-20-30	1.75-1.80-2.00	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	59-80	35-45-60	20-40-50	12-15-26	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Crosby-------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
FexB2:									
Fox----------------------	0-8	20-38-50	30-45-55	10-17-20	1.35-1.45-1.55	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	1.0-1.2-3.0
	8-18	20-45-50	20-30-40	18-25-35	1.55-1.60-1.65	0.60-1.30-2.00	0.15-0.23-0.30	3.00-4.50-5.90	0.0-0.5-1.0
	18-25	20-72-75	5-9 -40	18-19-35	1.55-1.60-1.65	0.60-1.30-2.00	0.07-0.10-0.18	3.00-4.50-5.90	0.0-0.5-1.0
	25-36	40-69-75	5-12-35	18-19-35	1.55-1.60-1.65	0.60-1.30-2.00	0.07-0.10-0.18	3.00-4.50-5.90	0.0-0.5-1.0
	36-80	85-91-95	5-7 -15	0-2-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
FexC2:									
Fox----------------------	0-7	20-38-50	30-45-55	10-17-20	1.35-1.45-1.55	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	1.0-1.2-3.0
	7-18	20-45-50	20-30-40	18-25-35	1.55-1.60-1.65	0.60-1.30-2.00	0.15-0.23-0.30	3.00-4.50-5.90	0.0-0.5-1.0
	18-25	20-72-75	5-9 -40	18-19-35	1.55-1.60-1.65	0.60-1.30-2.00	0.07-0.10-0.18	3.00-4.50-5.90	0.0-0.5-1.0
	25-36	40-69-75	5-12-35	18-19-35	1.55-1.60-1.65	0.60-1.30-2.00	0.07-0.10-0.18	3.00-4.50-5.90	0.0-0.5-1.0
	36-80	85-91-95	5-7 -15	0-2-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
MamA:									
Mahalasville-------------	0-15	5-15-20	40-54-70	27-31-35	1.20-1.40-1.65	0.60-1.30-2.00	0.20-0.23-0.26	3.00-4.50-5.90	2.0-3.5-5.0
	15-40	5-12-15	40-55-70	25-33-38	1.40-1.50-1.70	0.60-1.30-2.00	0.18-0.19-0.20	3.00-4.50-5.90	1.0-1.5-2.0
	40-52	20-35-50	20-47-60	8-18-28	1.40-1.50-1.60	0.60-1.30-2.00	0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	52-60	20-60-90	5-30-55	3-10-18	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
MaoA:									
Mahalaland---------------	0-13	5-15-20	40-54-70	27-31-35	1.20-1.40-1.60	0.60-1.30-2.00	0.22-0.23-0.24	3.00-4.50-5.90	2.0-3.5-5.0
	13-33	5-12-15	40-55-70	30-33-38	1.40-1.50-1.60	0.60-1.30-2.00	0.18-0.19-0.20	3.00-4.50-5.90	1.0-1.5-2.0
	33-46	20-48-60	20-42-50	5-10-30	1.50-1.60-1.70	2.00-4.00-6.00	0.10-0.15-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	46-80	85-89-95	5-8 -15	1-3-5	1.60-1.70-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
MjkAH:									
Medway-------------------	0-17	5-18-25	40-64-70	15-18-26	1.30-1.40-1.50	0.60-1.30-2.00	0.19-0.22-0.24	3.00-4.50-5.90	2.0-3.0-4.0
	17-21	5-18-28	40-53-60	24-29-32	1.30-1.40-1.50	0.60-1.30-2.00	0.19-0.22-0.24	3.00-4.50-5.90	2.0-3.0-4.0
	21-56	20-40-55	25-35-55	24-25-32	1.30-1.40-1.50	0.60-1.30-2.00	0.18-0.19-0.20	3.00-4.50-5.90	0.5-1.2-2.0
	56-80	30-45-65	20-37-45	12-18-30	1.50-1.60-1.70	2.00-4.00-6.00	0.15-0.17-0.20	0.00-1.50-2.90	0.5-0.8-1.0

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
MjkAH:									
Beckville---------------	0-11	30-40-50	30-48-60	7-12-18	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	2.0-3.0-4.0
	11-28	30-60-80	20-28-50	7-12-18	1.30-1.40-1.50	2.00-4.00-6.00	0.13-0.16-0.19	0.00-1.50-2.90	1.0-1.5-2.0
	28-60	30-60-80	20-28-50	7-12-18	1.30-1.45-1.60	2.00-4.00-6.00	0.11-0.15-0.18	0.00-1.50-2.90	0.5-0.8-1.0
MmoB3:									
Miami, severely eroded--	0-6	30-32-50	30-40-55	27-28-35	1.30-1.45-1.60	0.60-1.30-2.00	0.07-0.16-0.21	0.00-1.50-2.90	0.0-0.5-1.0
	6-29	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	29-34	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	34-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
MmoC3:									
Miami, severely eroded--	0-6	30-32-50	30-40-55	27-28-35	1.30-1.45-1.60	0.60-1.30-2.00	0.07-0.16-0.21	0.00-1.50-2.90	0.0-0.5-1.0
	6-29	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	29-34	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	34-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
MmoD3:									
Miami, severely eroded--	0-6	30-32-50	30-40-55	27-28-35	1.30-1.45-1.60	0.60-1.30-2.00	0.07-0.16-0.21	0.00-1.50-2.90	0.0-0.5-1.0
	6-29	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	29-34	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	34-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
MnpB2:									
Miami-------------------	0-8	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	8-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
MnpC2:									
Miami-------------------	0-7	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	7-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
MnpD2:									
Miami-------------------	0-7	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	7-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
ObxA:									
Ockley------------------	0-10	15-25-40	50-60-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90	1.0-1.5-3.0
	10-15	15-25-40	35-59-65	10-16-22	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90	0.5-1.2-2.0
	15-18	15-23-35	35-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90	0.5-0.8-1.0
	18-37	20-31-60	20-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90	0.5-0.8-1.0
	37-49	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.15-0.18	0.00-3.10-5.90	0.5-0.8-1.0
	49-80	80-89-95	3-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
ObxB2:									
Ockley------------------	0-8	15-25-40	50-60-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90	1.0-1.4-3.0
	8-15	15-25-40	35-59-65	10-16-22	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90	0.5-1.2-2.0
	15-18	15-23-35	35-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90	0.5-0.8-1.0
	18-37	20-31-60	20-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90	0.5-0.8-1.0
	37-49	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.15-0.18	0.00-3.10-5.90	0.5-0.8-1.0
	49-80	80-89-95	3-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
Ppu:									
Pits, sand and gravel.									
RqpG:									
Rodman------------------	0-10	60-64-80	10-28-40	8-8-18	1.60-1.65-1.70	2.00-4.00-6.00	0.08-0.12-0.22	0.00-1.50-2.90	2.0-2.8-6.0
	10-18	23-67-80	10-23-50	5-10-25	1.50-1.60-1.70	2.00-4.00-6.00	0.08-0.12-0.22	0.00-1.50-2.90	0.5-1.2-2.0
	18-80	70-85-100	0-11-20	0-4-10	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Rock outcrop.									
RtuAH:									
Rossburg----------------	0-11	10-17-25	50-59-65	20-24-30	1.20-1.35-1.50	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90	2.0-3.5-4.5
	11-31	15-18-40	40-52-60	20-30-35	1.20-1.35-1.50	0.60-1.30-2.00	0.19-0.22-0.24	0.00-1.50-2.90	2.0-3.5-4.5
	31-44	15-51-60	20-24-50	18-25-32	1.25-1.43-1.60	0.60-1.30-2.00	0.15-0.19-0.22	0.00-1.50-2.90	0.5-1.2-2.0
	44-61	25-82-90	4-8 -60	5-10-15	1.30-1.45-1.60	2.00-4.25-6.00	0.05-0.10-0.15	0.00-1.50-2.90	0.5-1.2-2.0
	61-80	25-82-90	4-8 -60	5-10-15	1.30-1.45-1.60	2.00-4.25-6.00	0.05-0.10-0.15	0.00-1.50-2.90	0.5-1.2-2.0
Landes------------------	0-19	50-60-80	15-28-40	5-12-20	1.40-1.45-1.50	2.00-4.00-6.00	0.12-0.17-0.22	0.00-1.50-2.90	2.0-3.5-5.0
	19-31	40-60-90	15-28-40	5-12-20	1.40-1.50-1.55	2.00-4.00-6.00	0.10-0.15-0.20	0.00-1.50-2.90	0.5-1.2-2.0
	31-36	40-65-90	15-23-60	5-12-18	1.45-1.55-1.65	2.00-11.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	36-60	40-65-90	15-23-60	5-12-18	1.45-1.55-1.65	2.00-11.00-20.00	0.06-0.09-0.12	0.00-1.50-2.90	0.5-0.8-1.0
SigE2:									
Senachwine--------------	0-5	20-34-45	40-51-55	10-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	5-28	15-42-45	25-30-50	27-28-32	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	28-36	25-44-45	25-30-50	20-26-30	1.50-1.60-1.70	0.20-0.40-0.60	0.07-0.12-0.17	3.00-4.50-5.90	0.5-1.2-2.0
	36-80	25-46-60	20-39-45	10-15-18	1.75-1.85-2.00	0.00-0.00-0.00	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
SldAH:									
Shoals------------------	0-8	15-26-40	40-52-60	10-22-26	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	2.0-3.0-4.0
	8-33	20-40-55	25-35-55	15-25-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.19-0.22	0.00-2.50-5.90	0.5-1.2-2.0
	33-60	20-55-90	5-30-55	5-15-28	1.45-1.55-1.65	0.60-3.30-5.95	0.05-0.13-0.20	0.00-1.50-2.90	0.5-1.2-2.0
SldAW:									
Shoals------------------	0-8	15-26-40	40-52-60	10-22-26	1.30-1.40-1.50	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	2.0-3.0-4.0
	8-33	20-40-55	25-35-55	15-25-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.19-0.22	0.00-2.50-5.90	0.5-1.2-2.0
	33-60	20-55-90	5-30-55	5-15-28	1.45-1.55-1.65	0.60-3.30-5.95	0.05-0.13-0.20	0.00-1.50-2.90	0.5-1.2-2.0
SngA:									
Sleeth------------------	0-8	10-20-30	50-62-80	17-18-24	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	8-19	8-18-30	50-52-70	25-30-35	1.40-1.50-1.70	0.60-1.30-2.00	0.16-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	19-43	30-45-70	20-28-40	15-27-35	1.50-1.60-1.70	0.60-1.30-2.00	0.07-0.15-0.18	3.00-4.50-5.90	0.0-0.2-0.5
	43-80	85-89-95	5-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
SnlAP:									
Southwest---------------	0-10	10-12-20	50-64-70	18-24-26	1.30-1.45-1.60	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-23	5-10-20	50-62-70	18-28-39	1.40-1.55-1.70	0.60-1.30-2.00	0.18-0.20-0.22	0.00-3.50-5.90	1.0-2.0-3.0
	23-34	5-12-30	40-60-70	18-28-39	1.40-1.55-1.70	0.20-0.40-0.60	0.20-0.22-0.24	0.00-3.50-5.90	3.0-4.5-6.0
	34-45	5-12-30	40-60-70	18-28-35	1.40-1.55-1.70	0.20-0.40-0.60	0.17-0.19-0.22	0.00-3.50-5.90	0.5-0.8-1.0
	45-75	5-12-30	40-60-70	18-28-35	1.40-1.55-1.70	0.20-0.40-0.60	0.21-0.22-0.24	0.00-3.50-5.90	2.0-3.5-5.0
	75-80	5-12-30	40-64-70	15-24-32	1.40-1.60-1.75	0.20-0.40-0.60	0.08-0.14-0.22	0.00-2.50-5.90	0.0-0.5-1.0
SocAH:									
Sloan-------------------	0-15	10-12-25	45-57-60	27-31-39	1.25-1.38-1.50	0.60-1.30-2.00	0.18-0.20-0.22	3.00-4.50-5.90	3.0-3.5-5.0
	15-34	15-28-40	35-41-60	22-31-39	1.25-1.40-1.55	0.20-1.10-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-1.2-2.0
	34-45	15-28-40	35-41-60	22-31-39	1.25-1.40-1.55	0.20-1.10-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-1.2-2.0
	45-60	15-50-65	25-29-60	10-21-35	1.20-1.35-1.50	0.20-1.10-2.00	0.13-0.16-0.18	0.00-1.50-2.90	0.0-0.2-0.5
SocAW:									
Sloan-------------------	0-15	10-12-25	45-57-60	27-31-39	1.25-1.38-1.50	0.60-1.30-2.00	0.18-0.20-0.22	3.00-4.50-5.90	3.0-3.5-5.0
	15-34	15-28-40	35-41-60	22-31-39	1.25-1.40-1.55	0.20-1.10-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-1.2-2.0
	34-45	15-28-40	35-41-60	22-31-39	1.25-1.40-1.55	0.20-1.10-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-1.2-2.0
	45-60	15-50-65	25-29-60	10-21-35	1.20-1.35-1.50	0.20-1.10-2.00	0.13-0.16-0.18	0.00-1.50-2.90	0.0-0.2-0.5
SteA:									
Starks------------------	0-10	5-18-20	50-67-80	11-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-38	5-9 -15	50-60-80	25-31-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	38-56	15-35-60	20-45-65	18-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.10-0.14-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	56-80	15-41-80	20-50-65	5-9-30	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
StjA:									
Starks------------------	0-10	5-18-20	50-67-80	11-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-38	5-9 -15	50-60-80	25-31-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	38-56	15-35-60	20-45-65	18-20-30	1.40-1.50-1.60	0.60-1.30-2.00	0.10-0.14-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	56-80	15-41-80	20-50-65	5-9-30	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
Crosby------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
SvqG:									
Strawn------------------	0-5	25-34-50	30-46-50	15-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	5-9	25-36-50	30-39-65	18-25-27	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-1.2-2.0
	9-22	15-36-50	30-36-65	18-28-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-1.2-2.0
	22-80	35-45-60	30-40-50	10-15-20	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
SvzG:									
Strawn------------------	0-5	25-34-50	30-46-50	15-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.20-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	5-9	25-36-50	30-39-65	18-25-27	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-1.2-2.0
	9-22	15-36-50	30-36-65	18-28-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-1.2-2.0
	22-80	35-45-60	30-40-50	10-15-20	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
Rock outcrop.									
ThrA:									
Treaty------------------	0-14	10-17-20	50-55-70	28-28-35	1.20-1.45-1.65	0.60-1.30-2.00	0.20-0.23-0.26	0.00-1.50-2.90	2.0-3.5-5.0
	14-36	8-12-18	50-55-70	25-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	1.0-1.5-2.0
	36-59	20-34-44	30-41-52	20-25-35	1.50-1.60-1.70	0.60-0.80-1.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	59-70	25-40-60	30-43-50	12-17-18	1.50-1.65-1.75	0.20-0.40-0.60	0.02-0.03-0.04	0.00-1.50-2.90	0.1-0.3-0.5
Uaz:									
Udorthents, sandy.									
Uby:									
Udorthents, loamy.									
UfnA:									
Urban land.									

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
UfnA:									
Crosby------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
UfoA:									
Urban land.									
Cyclone-----------------	0-14	10-18-20	50-54-67	25-28-35	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	3.00-4.50-5.90	3.0-4.5-6.0
	14-20	2-12-19	44-62-66	25-26-35	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	20-49	2-12-19	44-58-66	25-30-35	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	49-60	15-35-45	40-41-60	15-24-30	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	0.5-1.2-2.0
	60-80	30-40-56	34-45-50	9-15-25	1.60-1.65-1.75	0.20-0.40-0.60	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
UfxA:									
Urban land.									
Fincastle---------------	0-10	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-13	10-13-25	55-70-75	11-17-26	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	13-27	5-10-20	45-61-65	23-29-35	1.40-1.50-1.70	0.60-1.30-2.00	0.14-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	27-50	25-40-50	25-32-45	25-28-32	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.16-0.16	3.00-4.50-5.90	0.0-0.2-0.5
	50-59	30-45-50	25-35-45	12-20-30	1.75-1.80-2.00	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	59-80	35-45-60	20-40-50	12-15-26	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
UhuA:									
Urban land.									
Mahalasville------------	0-15	5-15-20	40-54-70	27-31-35	1.20-1.40-1.65	0.60-1.30-2.00	0.20-0.23-0.26	3.00-4.50-5.90	2.0-3.5-5.0
	15-40	5-12-15	40-55-70	25-33-38	1.40-1.50-1.70	0.60-1.30-2.00	0.18-0.19-0.20	3.00-4.50-5.90	1.0-1.5-2.0
	40-52	20-35-50	20-47-60	8-18-28	1.40-1.50-1.60	0.60-1.30-2.00	0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	52-60	20-60-90	5-30-55	3-10-18	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
UkbB:									
Urban land.									
Miami-------------------	0-8	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	8-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
UkbC:									
Urban land.									

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
UkbC:									
Miami	0-7	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	7-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
UkbD:									
Urban land.									
Miami	0-7	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	7-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
UkpA:									
Urban land.									
Ockley	0-10	15-25-40	50-60-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90	1.0-1.5-3.0
	10-15	15-25-40	35-59-65	10-16-22	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90	0.5-1.2-2.0
	15-18	15-23-35	35-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90	0.5-0.8-1.0
	18-37	20-31-60	20-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90	0.5-0.8-1.0
	37-49	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.15-0.18	0.00-3.10-5.90	0.5-0.8-1.0
	49-80	80-89-95	3-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
UkpB:									
Urban land.									
Ockley	0-8	15-25-40	50-60-65	10-15-20	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.26	0.00-1.50-2.90	1.0-1.4-3.0
	8-15	15-25-40	35-59-65	10-16-22	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.24	0.00-1.50-2.90	0.5-1.2-2.0
	15-18	15-23-35	35-51-60	22-26-34	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.19-0.22	0.00-3.10-5.90	0.5-0.8-1.0
	18-37	20-31-60	20-41-55	22-28-34	1.40-1.50-1.60	0.60-1.30-2.00	0.13-0.17-0.20	0.00-3.50-5.90	0.5-0.8-1.0
	37-49	40-65-75	5-14-30	10-21-32	1.40-1.55-1.70	0.60-3.30-6.00	0.07-0.15-0.18	0.00-3.10-5.90	0.5-0.8-1.0
	49-80	80-89-95	3-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.04-0.05	0.00-1.50-2.90	0.0-0.2-0.5
UmyA:									
Urban land.									
Treaty	0-14	10-17-20	50-55-70	28-28-35	1.20-1.45-1.65	0.60-1.30-2.00	0.20-0.23-0.26	0.00-1.50-2.90	2.0-3.5-5.0
	14-36	8-12-18	50-55-70	25-33-35	1.40-1.55-1.70	0.60-1.30-2.00	0.14-0.18-0.21	3.00-4.50-5.90	1.0-1.5-2.0
	36-59	20-34-44	30-41-52	20-25-35	1.50-1.60-1.70	0.60-0.80-1.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	59-70	25-40-60	30-43-50	12-17-18	1.50-1.65-1.75	0.20-0.40-0.60	0.02-0.03-0.04	0.00-1.50-2.90	0.1-0.3-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
UnhA:									
Urban land.									
Wawaka------------------	0-7	10-18-30	50-62-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	7-19	15-18-40	30-50-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	19-43	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	43-58	30-51-60	20-27-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90	0.0-0.2-0.5
	58-94	35-51-60	25-30-50	14-19-26	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90	0.0-0.2-0.5
	94-106	60-82-90	5-8 -25	5-10-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90	0.0-0.2-0.5
	106-118	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
UnuA:									
Urban land.									
Whitaker----------------	0-10	15-30-40	50-55-80	8-15-19	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-20	15-17-40	25-54-70	27-29-35	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	20-37	20-50-70	15-22-70	18-28-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	37-48	20-64-70	15-21-65	12-15-25	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	48-80	30-63-90	5-25-60	3-12-18	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
UnvB:									
Urban land.									
Williamstown------------	0-9	10-19-25	50-61-70	14-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.23-0.24	0.00-1.50-2.90	1.0-1.5-3.0
	9-33	15-35-45	20-35-55	27-30-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	33-37	25-45-60	20-35-50	18-20-27	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.12-0.12	0.00-1.50-2.90	0.0-0.2-0.5
	37-80	35-45-60	20-40-50	12-15-26	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Crosby------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
Usl:									
Udorthents, rubbish.									
W:									
Water.									

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
WdrA:									
Wawaka------------------	0-7	10-18-30	50-62-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	7-19	15-18-40	30-50-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	19-43	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	43-58	30-51-60	20-27-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90	0.0-0.2-0.5
	58-94	35-51-60	25-30-50	14-19-26	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90	0.0-0.2-0.5
	94-106	60-82-90	5-8 -25	5-10-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90	0.0-0.2-0.5
	106-118	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
WdrB2:									
Wawaka------------------	0-7	10-18-30	50-62-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90	1.0-1.8-3.0
	7-19	15-18-40	30-50-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	19-43	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	43-58	30-51-60	20-27-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90	0.0-0.2-0.5
	58-94	35-51-60	25-30-50	14-19-26	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90	0.0-0.2-0.5
	94-106	60-82-90	5-8 -25	5-10-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90	0.0-0.2-0.5
	106-118	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
WdrC2:									
Wawaka------------------	0-7	10-18-30	50-62-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90	1.0-1.8-3.0
	7-19	15-18-40	30-50-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	19-43	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	43-58	30-51-60	20-27-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90	0.0-0.2-0.5
	58-94	35-51-60	25-30-50	14-19-26	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90	0.0-0.2-0.5
	94-106	60-82-90	5-8 -25	5-10-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90	0.0-0.2-0.5
	106-118	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
WdrD2:									
Wawaka------------------	0-7	10-18-30	50-62-70	18-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.22-0.24	0.00-1.50-2.90	1.0-1.8-3.0
	7-19	15-18-40	30-50-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	19-43	15-30-40	30-38-55	27-32-35	1.40-1.55-1.70	0.60-1.30-2.00	0.12-0.18-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	43-58	30-51-60	20-27-50	15-22-30	1.50-1.60-1.70	0.20-0.40-0.60	0.10-0.13-0.16	0.00-2.50-5.90	0.0-0.2-0.5
	58-94	35-51-60	25-30-50	14-19-26	1.75-1.85-1.95	0.20-0.40-0.60	0.03-0.10-0.15	0.00-2.50-5.90	0.0-0.2-0.5
	94-106	60-82-90	5-8 -25	5-10-25	1.40-1.55-1.70	6.00-13.00-20.00	0.02-0.05-0.07	0.00-1.50-2.90	0.0-0.2-0.5
	106-118	85-90-95	3-6 -10	2-4-5	1.70-1.90-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
WmnA:									
Waynetown---------------	0-15	5-23-25	40-62-70	10-15-20	1.20-1.45-1.65	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	15-32	5-14-15	40-56-70	27-30-34	1.40-1.50-1.70	0.60-1.30-2.00	0.16-0.19-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	32-45	20-40-50	20-37-60	20-23-30	1.30-1.45-1.60	0.60-1.30-2.00	0.10-0.14-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	45-75	20-60-70	10-16-50	20-24-30	1.60-1.65-1.70	0.60-1.30-2.00	0.06-0.10-0.13	3.00-4.50-5.90	0.0-0.2-0.5
	75-80	85-89-95	5-8 -10	1-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
WofB:									
Williamstown------------	0-9	10-19-25	50-61-70	14-20-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.23-0.24	0.00-1.50-2.90	1.0-1.5-3.0
	9-33	15-35-45	20-35-55	27-30-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	33-37	25-45-60	20-35-50	18-20-27	1.60-1.70-1.80	0.20-0.40-0.60	0.04-0.12-0.12	0.00-1.50-2.90	0.0-0.2-0.5
	37-80	35-45-60	20-40-50	12-15-26	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Crosby------------------	0-8	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	8-11	15-20-30	50-63-75	10-17-24	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.21-0.26	0.00-1.50-2.90	1.0-1.5-2.0
	11-14	15-21-30	50-55-70	20-24-28	1.45-1.55-1.65	0.60-1.30-2.00	0.16-0.20-0.24	0.00-1.50-2.90	0.5-0.8-1.0
	14-28	10-21-30	35-43-60	35-36-45	1.45-1.55-1.65	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.5-0.8-1.0
	28-36	25-36-55	30-40-50	12-24-35	1.55-1.65-1.75	0.06-0.13-0.20	0.07-0.12-0.17	0.00-2.50-5.90	0.0-0.2-0.5
	36-80	30-40-60	28-45-50	10-15-25	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
WqvA:									
Westland----------------	0-10	5-19-20	40-51-70	27-30-32	1.30-1.45-1.60	0.60-1.30-2.00	0.17-0.23-0.23	3.00-4.50-5.90	2.0-3.5-5.0
	10-21	5-19-45	20-49-65	27-32-35	1.50-1.60-1.70	0.60-1.30-2.00	0.15-0.18-0.20	3.00-4.50-5.90	1.0-1.5-2.0
	21-37	20-31-55	20-41-50	10-28-30	1.50-1.60-1.70	0.60-1.30-2.00	0.10-0.16-0.20	0.00-1.50-2.90	0.5-0.8-1.0
	37-47	40-45-70	10-30-35	10-25-30	1.50-1.60-1.70	0.60-1.30-2.00	0.10-0.16-0.20	0.00-1.50-2.90	0.5-0.8-1.0
	47-80	85-89-95	5-8 -15	2-3-5	1.60-1.85-2.10	20.00-40.00-60.00	0.03-0.05-0.06	0.00-1.50-2.90	0.0-0.2-0.5
WtaA:									
Whitaker----------------	0-10	15-30-40	50-55-80	8-15-19	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	10-20	15-17-40	25-54-70	27-29-35	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	20-37	20-50-70	15-22-70	18-28-33	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	37-48	20-64-70	15-21-65	12-15-25	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	48-80	30-63-90	5-25-60	3-12-18	1.50-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.0-0.2-0.5
XfuB2:									
Miami-------------------	0-8	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	8-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
Rainsville--------------	0-8	9-15-37	51-66-78	13-19-25	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	8-13	5-18-20	35-56-60	24-26-30	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-30	30-40-60	15-35-50	20-25-30	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.18-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	30-42	30-40-60	15-35-50	20-25-30	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.16-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	42-48	30-40-60	30-38-50	18-22-25	1.50-1.60-1.70	0.20-0.40-0.60	0.17-0.19-0.19	0.00-1.50-2.90	0.5-0.8-1.0
	48-60	35-40-51	30-42-50	15-18-22	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5

Table 17A.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	*Pct*	Pct	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*
XfuC2:									
Miami--------------------	0-7	9-22-37	51-63-78	7-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	7-13	5-18-20	35-55-60	24-27-35	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-31	15-31-40	30-38-50	27-31-35	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.2-0.5
	31-36	35-38-55	30-40-45	15-22-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.5
	36-80	35-45-60	30-40-50	10-15-20	1.75-1.85-2.00	0.01-0.03-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
Rainsville--------------	0-6	9-15-37	51-66-78	13-19-25	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.22-0.24	0.00-1.50-2.90	1.0-1.2-3.0
	6-13	5-18-20	35-56-60	24-26-30	1.40-1.50-1.60	0.60-1.30-2.00	0.16-0.18-0.20	3.00-4.50-5.90	0.5-0.8-1.0
	13-30	30-40-60	15-35-50	20-25-30	1.40-1.50-1.60	0.60-1.30-2.00	0.17-0.18-0.19	3.00-4.50-5.90	0.5-0.8-1.0
	30-42	30-40-60	15-35-50	20-25-30	1.40-1.50-1.60	0.60-1.30-2.00	0.14-0.16-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	42-48	30-40-60	30-38-50	18-22-25	1.50-1.60-1.70	0.20-0.40-0.60	0.17-0.19-0.19	0.00-1.50-2.90	0.5-0.8-1.0
	48-60	35-40-51	30-42-50	15-18-22	1.75-1.80-2.00	0.01-0.03-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5

Table 17B.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
CbaA:								
Camden	0-9	.43	.43	5	5	56	200	1.0
	9-29	.49	.49					
	29-64	.32	.32					
	64-80	.37	.37					
CudA:								
Crosby	0-8	.43	.43	4	5	56	200	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
CxdA:								
Cyclone	0-14	.28	.28	5	7	38	200	0.5
	14-20	.37	.37					
	20-49	.37	.37					
	49-60	.37	.37					
	60-80	.32	.37					
EdeAW:								
Eel	0-10	.43	.43	5	5	56	150	0.5
	10-34	.32	.32					
	34-42	.32	.32					
	42-60	.43	.43					
Beckville	0-11	.32	.32	5	5	56	150	0.5
	11-28	.32	.32					
	28-60	.24	.28					
FdbA:								
Fincastle	0-10	.49	.49	4	5	56	200	1.0
	10-13	.49	.49					
	13-27	.43	.43					
	27-50	.32	.37					
	50-59	.32	.37					
	59-80	.32	.37					
FdhA:								
Fincastle	0-10	.49	.49	4	5	56	200	1.0
	10-13	.49	.49					
	13-27	.43	.43					
	27-50	.32	.37					
	50-59	.32	.37					
	59-80	.32	.37					
Crosby	0-8	.43	.43	4	5	56	200	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
FexB2:								
Fox	0-8	.24	.28	4	5	56	150	4.0
	8-18	.24	.32					
	18-25	.20	.32					
	25-36	.20	.32					
	36-80	.05	.10					
FexC2:								
Fox	0-7	.24	.28	4	5	56	100	8.0
	7-18	.24	.32					
	18-25	.20	.32					
	25-36	.20	.32					
	36-80	.05	.10					
MamA:								
Mahalasville	0-15	.28	.28	5	7	38	200	0.5
	15-40	.37	.37					
	40-52	.37	.37					
	52-60	.43	.43					
MaoA:								
Mahalaland	0-13	.28	.28	4	7	38	200	0.5
	13-33	.37	.37					
	33-46	.37	.37					
	46-80	.05	.05					
MjkAH:								
Medway	0-17	.28	.28	5	7	38	150	0.5
	17-21	.28	.28					
	21-56	.20	.20					
	56-80	.24	.17					
Beckville	0-11	.32	.32	5	5	56	150	0.5
	11-28	.32	.32					
	28-60	.24	.28					
MmoB3:								
Miami, severely eroded	0-6	.32	.32	3	6	48	100	5.0
	6-29	.32	.32					
	29-34	.37	.43					
	34-80	.37	.43					
MmoC3:								
Miami, severely eroded	0-6	.32	.32	3	6	48	100	8.0
	6-29	.32	.32					
	29-34	.37	.43					
	34-80	.37	.43					
MmoD3:								
Miami, severely eroded	0-6	.32	.32	3	6	48	75	15.0
	6-29	.32	.32					
	29-34	.37	.43					
	34-80	.37	.43					
MnpB2:								
Miami	0-8	.43	.43	4	5	56	150	4.0
	8-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
MnpC2:								
Miami-------------------	0-7	.43	.43	4	5	56	100	8.0
	7-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
MnpD2:								
Miami-------------------	0-7	.43	.43	4	5	56	75	15.0
	7-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
ObxA:								
Ockley------------------	0-10	.43	.43	4	5	56	200	1.0
	10-15	.43	.43					
	15-18	.32	.37					
	18-37	.32	.37					
	37-49	.10	.20					
	49-80	.02	.10					
ObxB2:								
Ockley------------------	0-8	.43	.43	4	5	56	130	4.0
	8-15	.43	.43					
	15-18	.32	.37					
	18-37	.32	.37					
	37-49	.10	.20					
	49-80	.02	.10					
Ppu:								
Pits, sand and gravel.								
RqpG:								
Rodman------------------	0-10	.10	.15	3	8	0	60	40.0
	10-18	.05	.24					
	18-80	.02	.10					
Rock outcrop.								
RtuAH:								
Rossburg----------------	0-11	.37	.37	5	6	48	150	0.5
	11-31	.37	.37					
	31-44	.37	.37					
	44-61	.24	.28					
	61-80	.24	.28					
Landes------------------	0-19	.24	.24	4	3	86	150	0.5
	19-31	.24	.24					
	31-36	.15	.15					
	36-60	.15	.15					
SigE2:								
Senachwine--------------	0-5	.37	.37	3	5	56	75	20.0
	5-28	.37	.37					
	28-36	.28	.32					
	36-80	.32	.43					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						Ft	Pct
SldAH:								
Shoals------------------	0-8	.37	.37	5	6	48	150	0.5
	8-33	.32	.32					
	33-60	.32	.37					
SldAW:								
Shoals------------------	0-8	.37	.37	5	6	48	150	0.5
	8-33	.32	.32					
	33-60	.32	.37					
SngA:								
Sleeth------------------	0-8	.43	.43	4	5	56	200	1.0
	8-19	.43	.43					
	19-43	.15	.24					
	43-80	.02	.10					
SnlAP:								
Southwest---------------	0-10	.37	.37	5	6	48	150	0.5
	10-23	.37	.37					
	23-34	.28	.28					
	34-45	.37	.37					
	45-75	.28	.28					
	75-80	.43	.43					
SocAH:								
Sloan-------------------	0-15	.24	.24	5	7	38	150	0.5
	15-34	.37	.20					
	34-45	.37	.20					
	45-60	.37	.28					
SocAW:								
Sloan-------------------	0-15	.24	.24	5	7	38	150	0.5
	15-34	.37	.20					
	34-45	.37	.20					
	45-60	.37	.28					
SteA:								
Starks------------------	0-10	.43	.43	5	5	56	200	1.0
	10-38	.37	.37					
	38-56	.32	.32					
	56-80	.37	.37					
StjA:								
Starks------------------	0-10	.43	.43	5	5	56	200	1.0
	10-38	.37	.37					
	38-56	.32	.32					
	56-80	.37	.37					
Crosby------------------	0-8	.43	.43	4	5	56	200	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
SvqG:								
Strawn------------------	0-5	.37	.37	3	5	56	50	45.0
	5-9	.28	.32					
	9-22	.28	.32					
	22-80	.37	.43					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
SvzG:								
Strawn	0-5	.37	.37	3	5	56	50	45.0
	5-9	.28	.32					
	9-22	.28	.32					
	22-80	.37	.43					
Rock outcrop.								
ThrA:								
Treaty	0-14	.28	.28	5	7	38	200	0.5
	14-36	.37	.37					
	36-59	.32	.32					
	59-70	.32	.37					
Uaz:								
Udorthents, sandy.								
Uby:								
Udorthents, loamy.								
UfnA:								
Urban land.								
Crosby	0-8	.43	.43	4	5	56	200	1.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
UfoA:								
Urban land.								
Cyclone	0-14	.28	.28	5	7	38	200	0.5
	14-20	.37	.37					
	20-49	.37	.37					
	49-60	.37	.37					
	60-80	.32	.37					
UfxA:								
Urban land.								
Fincastle	0-10	.49	.49	4	5	56	200	1.0
	10-13	.49	.49					
	13-27	.43	.43					
	27-50	.32	.37					
	50-59	.32	.37					
	59-80	.32	.37					
UhuA:								
Urban land.								
Mahalasville	0-15	.28	.28	5	7	38	200	0.5
	15-40	.37	.37					
	40-52	.37	.37					
	52-60	.43	.43					
UkbB:								
Urban land.								

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors			Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
		Kw	Kf	T				
	In						*Ft*	*Pct*
UkbB:								
Miami-------------------	0-8	.43	.43	4	5	56	150	4.0
	8-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
UkbC:								
Urban land.								
Miami-------------------	0-7	.43	.43	4	5	56	100	8.0
	7-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
UkbD:								
Urban land.								
Miami-------------------	0-7	.43	.43	4	5	56	75	15.0
	7-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
UkpA:								
Urban land.								
Ockley------------------	0-10	.43	.43	4	5	56	200	1.0
	10-15	.43	.43					
	15-18	.32	.37					
	18-37	.32	.37					
	37-49	.10	.20					
	49-80	.02	.10					
UkpB:								
Urban land.								
Ockley------------------	0-8	.43	.43	4	5	56	130	4.0
	8-15	.43	.43					
	15-18	.32	.37					
	18-37	.32	.37					
	37-49	.10	.20					
	49-80	.02	.10					
UmyA:								
Urban land.								
Treaty------------------	0-14	.28	.28	5	7	38	200	0.5
	14-36	.37	.37					
	36-59	.32	.32					
	59-70	.32	.37					
UnhA:								
Urban land.								

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
UnhA:								
Wawaka------------------	0-7	.43	.43	4	5	56	250	1.0
	7-19	.28	.32					
	19-43	.28	.32					
	43-58	.28	.37					
	58-94	.24	.43					
	94-106	.05	.15					
	106-118	.02	.05					
UnuA:								
Urban land.								
Whitaker----------------	0-10	.37	.37	5	5	56	200	1.0
	10-20	.28	.28					
	20-37	.32	.32					
	37-48	.32	.32					
	48-80	.32	.32					
UnvB:								
Urban land.								
Williamstown------------	0-9	.43	.43	4	5	56	130	3.0
	9-33	.32	.37					
	33-37	.37	.43					
	37-80	.43	.49					
Crosby------------------	0-8	.43	.43	4	5	56	150	3.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
Usl:								
Udorthents, rubbish.								
W:								
Water.								
WdrA:								
Wawaka------------------	0-7	.43	.43	4	5	56	250	1.0
	7-19	.28	.32					
	19-43	.28	.32					
	43-58	.28	.37					
	58-94	.24	.43					
	94-106	.05	.15					
	106-118	.02	.05					
WdrB2:								
Wawaka------------------	0-7	.43	.43	4	5	56	200	4.0
	7-19	.28	.32					
	19-43	.28	.32					
	43-58	.28	.37					
	58-94	.24	.43					
	94-106	.05	.15					
	106-118	.02	.05					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
WdrC2:								
Wawaka	0-7	.43	.43	4	5	56	100	8.0
	7-19	.28	.32					
	19-43	.28	.32					
	43-58	.28	.37					
	58-94	.24	.43					
	94-106	.05	.15					
	106-118	.02	.05					
WdrD2:								
Wawaka	0-7	.43	.43	4	5	56	75	15.0
	7-19	.28	.32					
	19-43	.28	.32					
	43-58	.28	.37					
	58-94	.24	.43					
	94-106	.05	.15					
	106-118	.02	.05					
WmnA:								
Waynetown	0-15	.43	.43	4	5	56	200	1.0
	15-32	.43	.43					
	32-45	.17	.20					
	45-75	.05	.17					
	75-80	.02	.10					
WofB:								
Williamstown	0-9	.43	.43	4	5	56	130	3.0
	9-33	.32	.37					
	33-37	.37	.43					
	37-80	.43	.49					
Crosby	0-8	.43	.43	4	5	56	150	3.0
	8-11	.43	.43					
	11-14	.43	.43					
	14-28	.28	.32					
	28-36	.28	.37					
	36-80	.32	.43					
WqvA:								
Westland	0-10	.20	.20	4	7	38	200	0.5
	10-21	.28	.28					
	21-37	.10	.24					
	37-47	.10	.24					
	47-80	.02	.10					
WtaA:								
Whitaker	0-10	.37	.37	5	5	56	200	1.0
	10-20	.28	.28					
	20-37	.32	.32					
	37-48	.32	.32					
	48-80	.32	.32					
XfuB2:								
Miami	0-8	.43	.43	4	5	56	150	4.0
	8-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					

Table 17B.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index	Slope length (rv)	Slope gradient (rv)
	In						*Ft*	*Pct*
XfuB2:								
Rainsville--------------	0-8	.43	.43	4	5	56	130	4.0
	8-13	.49	.49					
	13-30	.43	.43					
	30-42	.32	.37					
	42-48	.37	.43					
	48-60	.32	.37					
XfuC2:								
Miami-------------------	0-7	.43	.43	4	5	56	100	8.0
	7-13	.49	.49					
	13-31	.32	.32					
	31-36	.37	.43					
	36-80	.37	.43					
Rainsville--------------	0-6	.43	.43	4	5	56	75	8.0
	6-13	.49	.49					
	13-30	.43	.43					
	30-42	.32	.37					
	42-48	.37	.43					
	48-60	.32	.37					

Table 18.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated. Low, representative, and high values of the properties are separated by a hyphen.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
CbaA:					
Camden----------------	0-9	8.0-14.0-20.0	6.0-11.0-15.0	5.1-6.6-7.3	0
	9-29	10.0-17.0-23.0	8.0-12.0-17.0	5.1-5.9-7.3	0
	29-64	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.9-7.3	0
	64-80	3.0-8.5-14.0	2.0-6.0-11.0	5.1-6.8-8.4	0-0-40
CudA:					
Crosby----------------	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50
CxdA:					
Cyclone---------------	0-14	15.0-22.5-30.0	---	5.6-6.3-7.3	0
	14-20	11.0-18.0-25.0	---	6.1-6.9-7.3	0
	20-49	11.0-18.0-25.0	---	6.1-7.3-7.3	0
	49-60	11.0-18.0-25.0	---	6.1-7.3-7.3	0
	60-80	6.0-11.5-17.0	---	7.4-8.1-8.4	15-25-40
EdeAW:					
Eel-------------------	0-10	8.0-16.0-24.0	---	6.1-7.1-7.3	0-5-10
	10-34	8.0-16.0-24.0	---	6.1-6.9-7.8	0-10-20
	34-42	8.0-16.0-24.0	---	6.6-7.7-7.8	0-10-20
	42-60	5.0-12.0-19.0	---	7.4-7.9-8.4	10-20-30
Beckville-------------	0-11	7.0-13.0-19.0	---	6.6-7.4-7.8	0-1-10
	11-28	5.0-10.0-15.0	---	6.6-7.3-7.8	0-2-10
	28-60	4.0-8.5-13.0	---	7.4-8.0-8.4	3-4-20
FdbA:					
Fincastle-------------	0-10	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	10-13	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	13-27	15.0-20.0-25.0	11.0-15.0-19.0	5.1-5.8-6.5	0
	27-50	15.0-20.0-25.0	11.0-15.0-19.0	5.1-6.9-7.8	0-3-5
	50-59	5.0-10.0-15.0	---	6.6-7.4-8.4	0-12-30
	59-80	5.0-10.0-15.0	---	7.4-8.0-8.4	15-24-40
FdhA:					
Fincastle-------------	0-10	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	10-13	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	13-27	15.0-20.0-25.0	11.0-15.0-19.0	5.1-5.8-6.5	0
	27-50	15.0-20.0-25.0	11.0-15.0-19.0	5.1-6.9-7.8	0-3-5
	50-59	5.0-10.0-15.0	---	6.6-7.4-8.4	0-12-30
	59-80	5.0-10.0-15.0	---	7.4-8.0-8.4	15-24-40
Crosby----------------	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
FexB2:					
Fox------------------	0-8	6.0-16.0-18.0	5.0-12.0-14.0	5.1-5.2-7.3	0
	8-18	10.0-18.0-25.0	8.0-14.0-19.0	5.1-6.3-7.3	0
	18-25	10.0-14.0-25.0	---	5.6-6.5-7.3	0
	25-36	10.0-23.0-25.0	---	5.6-6.8-7.8	0-0-25
	36-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-33-45
FexC2:					
Fox------------------	0-7	6.0-16.0-18.0	5.0-12.0-14.0	5.1-5.2-7.3	0
	7-18	10.0-18.0-25.0	8.0-14.0-19.0	5.1-6.3-7.3	0
	18-25	10.0-14.0-25.0	---	5.6-6.5-7.3	0
	25-36	10.0-23.0-25.0	---	5.6-6.8-7.8	0-0-25
	36-80	0.0-1.5-3.0	---	7.4-7.9-8.4	25-33-45
MamA:					
Mahalasville---------	0-15	15.0-21.5-28.0	---	6.1-6.5-7.3	0
	15-40	12.0-20.0-25.0	---	6.1-6.7-7.3	0
	40-52	4.0-11.5-19.0	---	6.1-6.9-7.3	0
	52-60	1.0-6.5-12.0	---	7.4-7.9-8.4	10-20-30
MaoA:					
Mahalaland-----------	0-13	17.0-19.0-21.0	---	6.1-6.5-7.3	0
	13-33	13.0-20.0-25.0	---	6.1-6.6-7.3	0
	33-46	5.0-11.0-17.0	---	6.6-7.5-8.4	0-5-20
	46-80	1.0-2.5-4.0	---	7.4-8.0-8.4	10-34-40
MjkAH:					
Medway---------------	0-17	20.0-30.0-40.0	---	6.1-7.0-7.8	0
	17-21	20.0-30.0-40.0	---	6.1-7.0-7.8	0
	21-56	10.0-15.0-20.0	---	6.1-7.3-8.4	0-0-20
	56-80	5.0-10.0-15.0	---	6.1-8.2-8.4	0-5-30
Beckville------------	0-11	7.0-13.0-19.0	---	6.6-7.4-7.8	0-1-10
	11-28	5.0-10.0-15.0	---	6.6-7.3-7.8	0-2-10
	28-60	4.0-8.5-13.0	---	7.4-8.0-8.4	3-4-20
MmoB3:					
Miami, severely eroded--------------	0-6	7.0-12.0-17.0	---	5.6-6.1-7.3	0
	6-29	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.7-6.5	0
	29-34	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	34-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
MmoC3:					
Miami, severely eroded--------------	0-6	7.0-12.0-17.0	---	5.6-6.1-7.3	0
	6-29	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.7-6.5	0
	29-34	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	34-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
MmoD3:					
Miami, severely eroded--------------	0-6	7.0-12.0-17.0	---	5.6-6.1-7.3	0
	6-29	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.7-6.5	0
	29-34	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	34-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
MnpB2:					
Miami----------------	0-8	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	8-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
MnpC2:					
Miami----------------	0-7	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	7-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
MnpD2:					
Miami----------------	0-7	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	7-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
ObxA:					
Ockley---------------	0-10	5.0-9.0-15.0	---	5.6-6.1-7.3	0
	10-15	5.0-10.0-15.0	---	5.6-6.1-6.5	0
	15-18	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.8-6.5	0
	18-37	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.6-6.5	0
	37-49	4.0-11.0-18.0	3.0-8.0-14.0	5.1-6.1-7.8	0-2-5
	49-80	1.0-2.0-3.0	---	7.4-8.0-8.4	20-38-50
ObxB2:					
Ockley---------------	0-8	5.0-9.0-15.0	---	5.6-6.1-7.3	0
	8-15	5.0-10.0-15.0	---	5.6-6.1-6.5	0
	15-18	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.8-6.5	0
	18-37	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.6-6.5	0
	37-49	4.0-11.0-18.0	3.0-8.0-14.0	5.1-6.1-7.8	0-2-5
	49-80	1.0-2.0-3.0	---	7.4-8.0-8.4	20-38-50
Ppu:					
Pits, sand and gravel.					
RqpG:					
Rodman---------------	0-10	7.0-17.0-27.0	---	6.6-7.3-7.8	0-11-15
	10-18	3.0-11.0-19.0	---	6.6-7.6-7.8	0-21-30
	18-80	0.0-3.5-7.0	---	7.4-7.9-8.4	20-41-55
Rock outcrop.					
RtuAH:					
Rossburg-------------	0-11	9.0-16.5-24.0	---	6.1-7.0-7.8	0-0-10
	11-31	9.0-18.0-24.0	---	6.1-6.3-7.8	0-0-10
	31-44	7.0-15.0-16.0	---	6.1-6.6-7.8	0-0-10
	44-61	2.0-5.5-9.0	---	6.6-7.3-8.4	0-10-20
	61-80	2.0-5.5-9.0	---	6.6-8.0-8.4	0-20-30
Landes---------------	0-19	6.0-14.0-22.0	---	6.1-7.4-8.4	0-0-10
	19-31	3.0-9.5-16.0	---	6.1-7.3-8.4	0-0-10
	31-36	3.0-8.5-14.0	---	6.1-7.3-8.4	0-10-20
	36-60	3.0-8.5-14.0	---	6.1-7.8-8.4	0-20-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
SigE2:					
Senachwine-----------	0-5	9.0-15.5-22.0	---	5.6-6.6-7.3	0
	5-28	9.0-15.5-22.0	7.0-12.0-17.0	5.1-6.0-7.3	0
	28-36	11.0-18.0-25.0	---	6.6-7.4-7.8	0-12-30
	36-80	7.0-12.0-17.0	---	7.4-8.0-8.4	20-30-40
SldAH:					
Shoals---------------	0-8	12.0-19.5-27.0	---	6.6-6.9-7.8	0-0-5
	8-33	8.0-16.0-24.0	---	6.6-7.0-8.4	0-0-10
	33-60	3.0-11.0-19.0	---	6.6-7.9-8.4	0-19-25
SldAW:					
Shoals---------------	0-8	12.0-19.5-27.0	---	6.6-6.9-7.8	0-0-5
	8-33	8.0-16.0-24.0	---	6.6-7.0-8.4	0-0-10
	33-60	3.0-11.0-19.0	---	6.6-7.9-8.4	0-19-25
SngA:					
Sleeth---------------	0-8	10.0-12.5-15.0	---	5.6-6.1-7.3	0
	8-19	10.0-14.0-15.0	8.0-9.0-12.0	5.1-6.1-7.3	0
	19-43	10.0-12.5-15.0	---	5.6-6.1-7.8	0-1-30
	43-80	0.0-2.5-5.0	---	7.4-8.3-8.4	20-28-55
SnlAP:					
Southwest------------	0-10	10.0-14.5-15.0	---	5.6-5.8-7.3	0
	10-23	10.0-17.0-18.0	---	5.6-5.9-7.3	0
	23-34	15.0-17.0-36.0	---	6.1-6.4-7.8	0
	34-45	10.0-17.0-20.0	---	6.1-6.9-7.8	0
	45-75	10.0-17.0-33.0	---	6.1-7.0-7.8	0-0-15
	75-80	2.0-14.5-15.0	---	7.4-7.4-8.4	5-12-25
SocAH:					
Sloan----------------	0-15	19.0-24.0-29.0	---	6.1-6.8-7.8	0-0-10
	15-34	10.0-19.0-20.0	---	6.1-7.0-8.4	0-0-10
	34-45	10.0-19.0-20.0	---	6.6-7.3-8.4	0-5-10
	45-60	4.0-13.0-18.0	---	6.6-7.5-8.4	0-31-40
SocAW:					
Sloan----------------	0-15	19.0-24.0-29.0	---	6.1-6.8-7.8	0-0-10
	15-34	10.0-19.0-20.0	---	6.1-7.0-8.4	0-0-10
	34-45	10.0-19.0-20.0	---	6.6-7.3-8.4	0-5-10
	45-60	4.0-13.0-18.0	---	6.6-7.5-8.4	0-31-40
SteA:					
Starks---------------	0-10	6.0-12.0-18.0	5.0-9.0-14.0	5.1-5.7-7.3	0
	10-38	10.0-19.0-23.0	8.0-12.0-17.0	5.1-5.8-6.5	0
	38-56	8.0-14.0-20.0	6.0-11.0-15.0	5.1-6.4-7.8	0-4-20
	56-80	2.0-7.5-13.0	1.0-5.0-10.0	5.1-6.5-7.8	0-23-45
StjA:					
Starks---------------	0-10	6.0-12.0-18.0	5.0-9.0-14.0	5.1-5.7-7.3	0
	10-38	10.0-19.0-23.0	8.0-12.0-17.0	5.1-5.8-6.5	0
	38-56	8.0-14.0-20.0	6.0-11.0-15.0	5.1-6.4-7.8	0-4-20
	56-80	2.0-7.5-13.0	1.0-5.0-10.0	5.1-6.5-7.8	0-23-45
Crosby---------------	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
SvqG:					
Strawn---------------	0-5	9.0-15.5-22.0	---	5.6-6.7-7.3	0
	5-9	11.0-15.0-25.0	---	5.6-6.6-7.3	0-0-30
	9-22	11.0-14.5-25.0	---	5.6-7.2-7.8	0-15-30
	22-80	2.0-5.5-9.0	---	7.4-8.0-8.4	20-30-40
SvzG:					
Strawn---------------	0-5	9.0-15.5-22.0	---	5.6-6.7-7.3	0
	5-9	11.0-15.0-25.0	---	5.6-6.6-7.3	0-0-30
	9-22	11.0-14.5-25.0	---	5.6-7.2-7.8	0-15-30
	22-80	2.0-5.5-9.0	---	7.4-8.0-8.4	20-30-40
Rock outcrop---------	---	---	---	---	---
ThrA:					
Treaty---------------	0-14	15.0-23.0-31.0	---	5.6-6.4-7.3	0
	14-36	13.0-20.0-25.0	---	6.1-6.8-7.8	0-0-10
	36-59	9.0-16.0-23.0	---	6.6-7.2-8.4	0-0-25
	59-70	5.0-8.5-12.0	---	7.4-8.0-8.4	15-28-40
Uaz:					
Udorthents, sandy.					
Uby:					
Udorthents, loamy.					
UfnA:					
Urban land.					
Crosby---------------	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50
UfoA:					
Urban land.					
Cyclone--------------	0-14	15.0-22.5-30.0	---	5.6-6.3-7.3	0
	14-20	11.0-18.0-25.0	---	6.1-6.9-7.3	0
	20-49	11.0-18.0-25.0	---	6.1-7.3-7.3	0
	49-60	11.0-18.0-25.0	---	6.1-7.3-7.3	0
	60-80	6.0-11.5-17.0	---	7.4-8.1-8.4	15-25-40
UfxA:					
Urban land.					
Fincastle------------	0-10	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	10-13	10.0-15.0-20.0	8.0-11.0-15.0	5.1-5.9-7.3	0
	13-27	15.0-20.0-25.0	11.0-15.0-19.0	5.1-5.8-6.5	0
	27-50	15.0-20.0-25.0	11.0-15.0-19.0	5.1-6.9-7.8	0-3-5
	50-59	5.0-10.0-15.0	---	6.6-7.4-8.4	0-12-30
	59-80	5.0-10.0-15.0	---	7.4-8.0-8.4	15-24-40
UhuA:					
Urban land.					

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
UhuA:					
Mahalasville---------	0-15	15.0-21.5-28.0	---	6.1-6.5-7.3	0
	15-40	12.0-20.0-25.0	---	6.1-6.7-7.3	0
	40-52	4.0-11.5-19.0	---	6.1-6.9-7.3	0
	52-60	1.0-6.5-12.0	---	7.4-7.9-8.4	10-20-30
UkbB:					
Urban land.					
Miami----------------	0-8	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	8-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
UkbC:					
Urban land.					
Miami----------------	0-7	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	7-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
UkbD:					
Urban land.					
Miami----------------	0-7	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	7-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
UkpA:					
Urban land.					
Ockley---------------	0-10	5.0-9.0-15.0	---	5.6-6.1-7.3	0
	10-15	5.0-10.0-15.0	---	5.6-6.1-6.5	0
	15-18	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.8-6.5	0
	18-37	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.6-6.5	0
	37-49	4.0-11.0-18.0	3.0-8.0-14.0	5.1-6.1-7.8	0-2-5
	49-80	1.0-2.0-3.0	---	7.4-8.0-8.4	20-38-50
UkpB:					
Urban land.					
Ockley---------------	0-8	5.0-9.0-15.0	---	5.6-6.1-7.3	0
	8-15	5.0-10.0-15.0	---	5.6-6.1-6.5	0
	15-18	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.8-6.5	0
	18-37	8.0-14.0-20.0	6.0-11.0-15.0	5.1-5.6-6.5	0
	37-49	4.0-11.0-18.0	3.0-8.0-14.0	5.1-6.1-7.8	0-2-5
	49-80	1.0-2.0-3.0	---	7.4-8.0-8.4	20-38-50
UmyA:					
Urban land.					
Treaty---------------	0-14	15.0-23.0-31.0	---	5.6-6.4-7.3	0
	14-36	13.0-20.0-25.0	---	6.1-6.8-7.8	0-0-10
	36-59	9.0-16.0-23.0	---	6.6-7.2-8.4	0-0-25
	59-70	5.0-8.5-12.0	---	7.4-8.0-8.4	15-28-40

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
UnhA:					
Urban land.					
Wawaka	0-7	4.0-10.5-17.0	3.0-8.0-13.0	5.1-6.6-7.3	0
	7-19	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.3-8.4	0-0-20
	19-43	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.0-8.4	0-0-20
	43-58	8.0-12.0-16.0	6.0-9.0-12.0	5.1-6.5-8.4	0-20-30
	58-94	4.0-6.5-9.0	---	7.4-7.9-8.4	30-30-45
	94-106	4.0-12.0-20.0	---	7.4-7.9-8.4	30-35-45
	106-118	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50
UnuA:					
Urban land.					
Whitaker	0-10	5.0-11.0-17.0	---	5.6-6.0-7.3	0
	10-20	5.0-11.0-17.0	4.0-8.0-13.0	5.1-5.5-6.0	0
	20-37	8.0-15.0-22.0	---	5.6-6.0-7.3	0-0-20
	37-48	8.0-15.0-22.0	---	5.6-7.1-7.8	0-32-35
	48-80	2.0-7.5-13.0	---	6.1-8.1-8.4	0-34-45
UnvB:					
Urban land.					
Williamstown	0-9	10.0-11.5-20.0	8.0-9.0-15.0	5.1-5.4-7.3	0
	9-33	15.0-17.0-25.0	11.0-13.0-19.0	4.5-5.9-7.3	0
	33-37	10.0-15.0-20.0	---	6.6-7.5-8.4	0-5-35
	37-80	5.0-10.0-15.0	---	7.4-7.9-8.4	20-32-45
Crosby	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50
Usl:					
Udorthents, rubbish.					
W:					
Water.					
WdrA:					
Wawaka	0-7	4.0-10.5-17.0	3.0-8.0-13.0	5.1-6.6-7.3	0
	7-19	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.3-8.4	0-0-20
	19-43	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.0-8.4	0-0-20
	43-58	8.0-12.0-16.0	6.0-9.0-12.0	5.1-6.5-8.4	0-20-30
	58-94	4.0-6.5-9.0	---	7.4-7.9-8.4	30-30-45
	94-106	4.0-12.0-20.0	---	7.4-7.9-8.4	30-35-45
	106-118	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50
WdrB2:					
Wawaka	0-7	4.0-10.5-17.0	3.0-8.0-13.0	5.1-6.6-7.3	0
	7-19	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.3-8.4	0-0-20
	19-43	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.0-8.4	0-0-20
	43-58	8.0-12.0-16.0	6.0-9.0-12.0	5.1-6.5-8.4	0-20-30
	58-94	4.0-6.5-9.0	---	7.4-7.9-8.4	30-30-45
	94-106	4.0-12.0-20.0	---	7.4-7.9-8.4	30-35-45
	106-118	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
WdrC2:					
Wawaka	0-7	4.0-10.5-17.0	3.0-8.0-13.0	5.1-6.6-7.3	0
	7-19	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.3-8.4	0-0-20
	19-43	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.0-8.4	0-0-20
	43-58	8.0-12.0-16.0	6.0-9.0-12.0	5.1-6.5-8.4	0-20-30
	58-94	4.0-6.5-9.0	---	7.4-7.9-8.4	30-30-45
	94-106	4.0-12.0-20.0	---	7.4-7.9-8.4	30-35-45
	106-118	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50
WdrD2:					
Wawaka	0-7	4.0-10.5-17.0	3.0-8.0-13.0	5.1-6.6-7.3	0
	7-19	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.3-8.4	0-0-20
	19-43	11.0-15.5-20.0	8.0-12.0-15.0	5.1-6.0-8.4	0-0-20
	43-58	8.0-12.0-16.0	6.0-9.0-12.0	5.1-6.5-8.4	0-20-30
	58-94	4.0-6.5-9.0	---	7.4-7.9-8.4	30-30-45
	94-106	4.0-12.0-20.0	---	7.4-7.9-8.4	30-35-45
	106-118	1.0-2.0-3.0	---	7.9-8.2-8.4	30-40-50
WmnA:					
Waynetown	0-15	6.0-12.0-18.0	5.0-8.0-14.0	5.1-6.0-7.3	0
	15-32	12.0-19.0-22.0	---	5.6-5.9-6.5	0
	32-45	9.0-13.5-18.0	---	5.6-6.4-6.5	0
	45-75	8.0-13.5-19.0	---	6.1-7.6-7.8	0-24-30
	75-80	0.0-2.0-4.0	---	7.4-8.3-8.4	25-33-55
WofB:					
Williamstown	0-9	10.0-11.5-20.0	8.0-9.0-15.0	5.1-5.4-7.3	0
	9-33	15.0-17.0-25.0	11.0-13.0-19.0	4.5-5.9-7.3	0
	33-37	10.0-15.0-20.0	---	6.6-7.5-8.4	0-5-35
	37-80	5.0-10.0-15.0	---	7.4-7.9-8.4	20-32-45
Crosby	0-8	6.0-11.0-20.0	5.0-10.0-15.0	5.1-6.2-7.3	0
	8-11	6.0-10.0-18.0	5.0-9.0-14.0	5.1-5.9-7.3	0
	11-14	7.0-14.0-30.0	5.0-9.0-14.0	5.1-5.5-7.3	0
	14-28	15.0-21.0-29.0	11.0-17.0-22.0	5.1-6.6-7.3	0
	28-36	5.0-12.0-17.0	---	7.4-7.5-8.4	5-11-40
	36-80	4.0-5.0-16.0	---	7.4-8.1-8.4	20-35-50
WqvA:					
Westland	0-10	15.0-20.0-25.0	---	6.1-6.1-7.3	0
	10-21	10.0-19.5-20.0	---	6.1-6.7-7.3	0
	21-37	5.0-17.0-18.0	---	6.1-6.7-7.3	0
	37-47	5.0-10.0-15.0	---	6.6-7.3-7.8	0-32-35
	47-80	0.0-0.3-0.5	---	7.4-8.1-8.4	25-34-55
WtaA:					
Whitaker	0-10	5.0-11.0-17.0	---	5.6-6.0-7.3	0
	10-20	5.0-11.0-17.0	4.0-8.0-13.0	5.1-5.5-6.0	0
	20-37	8.0-15.0-22.0	---	5.6-6.0-7.3	0-0-20
	37-48	8.0-15.0-22.0	---	5.6-7.1-7.8	0-32-35
	48-80	2.0-7.5-13.0	---	6.1-8.1-8.4	0-34-45
XfuB2:					
Miami	0-8	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	8-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate equivalent
	In	*meq/100 g*	*meq/100 g*	*pH*	*Pct*
XfuB2:					
Rainsville-----------	0-8	7.0-13.0-21.0	---	5.6-6.5-7.3	0
	8-13	11.0-15.5-20.0	---	5.6-6.1-7.3	0
	13-30	13.0-14.0-22.0	9.0-10.0-17.0	4.5-5.0-6.0	0
	30-42	13.0-14.0-22.0	9.0-10.0-17.0	5.1-5.5-6.0	0
	42-48	8.0-12.5-17.0	---	6.6-7.4-7.8	0-12-25
	48-60	6.0-10.0-14.0	---	7.4-8.0-8.4	15-30-40
XfuC2:					
Miami----------------	0-7	6.0-10.5-17.0	---	5.6-5.9-7.3	0
	7-13	16.0-20.0-25.0	12.0-15.0-19.0	5.1-5.2-6.5	0
	13-31	9.0-14.5-20.0	7.0-11.0-15.0	5.1-5.6-7.3	0
	31-36	4.0-7.5-11.0	---	6.6-7.9-8.4	0-12-20
	36-80	2.0-5.5-9.0	---	7.4-8.2-8.4	20-30-45
Rainsville-----------	0-6	7.0-13.0-21.0	---	5.6-6.5-7.3	0
	6-13	11.0-15.5-20.0	---	5.6-6.1-7.3	0
	13-30	13.0-14.0-22.0	9.0-10.0-17.0	4.5-5.0-6.0	0
	30-42	13.0-14.0-22.0	9.0-10.0-17.0	5.1-5.5-6.0	0
	42-48	8.0-12.5-17.0	---	6.6-7.4-7.8	0-12-25
	48-60	6.0-10.0-14.0	---	7.4-8.0-8.4	15-30-40

Table 19.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of flooding are from stream gauge data where such data are available. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
CbaA:									
Camden	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
CudA:									
Crosby	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None
CxdA:									
Cyclone	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
EdeAW:									
Eel	B	Jan-Feb	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		Mar	1.5-2.5	>6.0	---	---	None	Very brief	Occasional
		Apr	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		May	3.5-5.5	>6.0	---	---	None	Very brief	Occasional
		Jun	>6.0	>6.0	---	---	None	Very brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Very brief	Rare
		Oct	3.5-5.5	>6.0	---	---	None	Very brief	Rare
		Nov	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		Dec	1.5-2.5	>6.0	---	---	None	Very brief	Occasional
Beckville	B	Jan-Feb	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		Mar	1.5-2.5	>6.0	---	---	None	Very brief	Occasional
		Apr	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		May	3.5-5.5	>6.0	---	---	None	Very brief	Occasional
		Jun	>6.0	>6.0	---	---	None	Very brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Very brief	Rare
		Oct	3.5-5.5	>6.0	---	---	None	Very brief	Rare
		Nov	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		Dec	1.5-2.5	>6.0	---	---	None	Very brief	Occasional
FdbA:									
Fincastle	C	Jan-Mar	0.5-2.0	3.3-5.0	---	---	None	---	None
		Apr	0.5-3.0	3.3-5.0	---	---	None	---	None
		May-Jun	1.5-3.3	3.3-5.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	3.3-5.0	---	---	None	---	None
		Dec	0.5-3.0	3.3-5.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
FdhA:									
Fincastle	C	Jan-Mar	0.5-2.0	3.3-5.0	---	---	None	---	None
		Apr	0.5-3.0	3.3-5.0	---	---	None	---	None
		May-Jun	1.5-3.3	3.3-5.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	3.3-5.0	---	---	None	---	None
		Dec	0.5-3.0	3.3-5.0	---	---	None	---	None
Crosby	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None
FexB2:									
Fox	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
FexC2:									
Fox	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
MamA:									
Mahalasville	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
MaoA:									
Mahalaland	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
MjkAH:									
Medway	B	Jan-Feb	1.5-2.0	>6.0	---	---	None	Brief	Frequent
		Mar	1.5-2.5	>6.0	---	---	None	Brief	Frequent
		Apr	2.0-3.5	>6.0	---	---	None	Brief	Frequent
		May	3.5-5.5	>6.0	---	---	None	Brief	Occasional
		Jun	>6.0	>6.0	---	---	None	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Brief	Rare
		Oct	3.5-5.5	>6.0	---	---	None	Brief	Rare
		Nov	2.0-3.5	>6.0	---	---	None	Brief	Occasional
		Dec	1.5-2.5	>6.0	---	---	None	Brief	Frequent

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
MjkAH:									
Beckville	B	Jan-Feb	1.5-2.0	>6.0	---	---	None	Brief	Frequent
		Mar	1.5-2.5	>6.0	---	---	None	Brief	Frequent
		Apr	2.0-3.5	>6.0	---	---	None	Brief	Frequent
		May	3.5-5.5	>6.0	---	---	None	Brief	Occasional
		Jun	>6.0	>6.0	---	---	None	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Brief	Rare
		Oct	3.5-5.5	>6.0	---	---	None	Brief	Rare
		Nov	2.0-3.5	>6.0	---	---	None	Brief	Occasional
		Dec	1.5-2.5	>6.0	---	---	None	Brief	Frequent
MmoB3:									
Miami, severely eroded	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MmoC3:									
Miami, severely eroded	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MmoD3:									
Miami, severely eroded	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MnpB2:									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MnpC2:									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
MnpD2:									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
ObxA:									
Ockley	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
ObxB2:									
Ockley	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Ppu:									
Pits, sand and gravel	---	Jan-Dec	>6.0	>6.0	---	---	None	---	None
RqpG:									
Rodman	A	Jan-Dec	>6.0	>6.0	---	---	None	---	None
Rock outcrop.									
RtuAH:									
Rossburg	B	Jan-Apr	>6.0	>6.0	---	---	None	Brief	Frequent
		May-Jun	>6.0	>6.0	---	---	None	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	None	Brief	Rare
		Nov	>6.0	>6.0	---	---	None	Brief	Occasional
		Dec	>6.0	>6.0	---	---	None	Brief	Frequent
Landes	B	Jan-Apr	>6.0	>6.0	---	---	None	Brief	Frequent
		May-Jun	>6.0	>6.0	---	---	None	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	None	Brief	Rare
		Nov	>6.0	>6.0	---	---	None	Brief	Occasional
		Dec	>6.0	>6.0	---	---	None	Brief	Frequent
SigE2:									
Senachwine	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
SldAH:									
Shoals	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	Brief	Frequent
		Apr	0.5-3.0	>6.0	---	---	None	Brief	Frequent
		May-Jun	1.5-3.5	>6.0	---	---	None	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Brief	Rare
		Oct	1.5-3.5	>6.0	---	---	None	Brief	Rare
		Nov	1.5-3.5	>6.0	---	---	None	Brief	Occasional
		Dec	0.5-3.0	>6.0	---	---	None	Brief	Frequent
SldAW:									
Shoals	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	Very brief	Occasional
		Apr	0.5-3.0	>6.0	---	---	None	Very brief	Occasional
		May-Jun	1.5-3.5	>6.0	---	---	None	Very brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	None	Very brief	Rare
		Oct	1.5-3.5	>6.0	---	---	None	Very brief	Rare
		Nov	1.5-3.5	>6.0	---	---	None	Very brief	Occasional
		Dec	0.5-3.0	>6.0	---	---	None	Very brief	Occasional
SngA:									
Sleeth	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
SnlAP:									
Southwest	C	Jan-Apr	0.0-0.5	>6.0	0.0-0.5	Brief	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Brief	Frequent	---	None
		Jun	1.0-3.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul	3.5-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Aug-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	3.5-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	1.0-3.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-1.0	>6.0	0.0-0.5	Brief	Frequent	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
SocAH:									
Sloan-----------------	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Brief	Frequent
		Apr	0.0-0.5	>6.0	0.0-0.5	Brief	Occasional	Brief	Frequent
		May	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jun	1.0-1.5	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Sep	1.5-2.5	>6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Oct	1.0-1.5	>6.0	0.0-0.5	Brief	Occasional	Brief	Rare
		Nov	0.0-0.5	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		Dec	0.0-0.5	>6.0	0.0-0.5	Brief	Frequent	Brief	Occasional
SocAW:									
Sloan-----------------	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	Very brief	Occasional
		Apr	0.0-0.5	>6.0	0.0-0.5	Brief	Occasional	Very brief	Occasional
		May	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	Very brief	Occasional
		Jun	1.0-1.5	>6.0	0.0-0.5	Brief	Occasional	Very brief	Occasional
		Jul-Sep	1.5-2.5	>6.0	0.0-0.5	Brief	Occasional	Very brief	Rare
		Oct	1.0-1.5	>6.0	0.0-0.5	Brief	Occasional	Very brief	Rare
		Nov	0.0-0.5	>6.0	0.0-0.5	Brief	Occasional	Very brief	Occasional
		Dec	0.0-0.5	>6.0	0.0-0.5	Brief	Frequent	Very brief	Occasional
SteA:									
Starks----------------	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
StjA:									
Starks----------------	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
Crosby----------------	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None
SvqG:									
Strawn----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
SvzG:									
Strawn----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
Rock outcrop.									
ThrA:									
Treaty----------------	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
Uaz:									
Udorthents, sandy	---	Jan-Dec	---	---	---	---	None	---	None
Uby:									
Udorthents, loamy	---	Jan-Dec	---	---	---	---	None	---	None
UfnA:									
Urban land.									
Crosby	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None
UfoA:									
Urban land.									
Cyclone	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
UfxA:									
Urban land.									
Fincastle	C	Jan-Mar	0.5-2.0	3.3-5.0	---	---	None	---	None
		Apr	0.5-3.0	3.3-5.0	---	---	None	---	None
		May-Jun	1.5-3.3	3.3-5.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	3.3-5.0	---	---	None	---	None
		Dec	0.5-3.0	3.3-5.0	---	---	None	---	None
UhuA:									
Urban land.									
Mahalasville	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
UkbB:									
Urban land.									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	*Ft*	*Ft*				
UkbC:									
Urban land.									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
UkbD:									
Urban land.									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
UkpA:									
Urban land.									
Ockley	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
UkpB:									
Urban land.									
Ockley	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
UmyA:									
Urban land.									
Treaty	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
UnhA:									
Urban land.									
Wawaka	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
UnuA:									
Urban land.									
Whitaker	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
UnvB:									
Urban land.									

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
UnvB:									
Williamstown----------	C	Jan-Mar	1.0-2.5	2.0-3.3	---	---	None	---	None
		Apr	1.5-2.5	2.0-3.3	---	---	None	---	None
		May	1.5-3.0	2.0-3.3	---	---	None	---	None
		Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct	1.5-3.3	2.0-3.3	---	---	None	---	None
		Nov	1.5-3.0	2.0-3.3	---	---	None	---	None
		Dec	1.0-2.5	2.0-3.3	---	---	None	---	None
Crosby----------------	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None
Usl:									
Udorthents, rubbish---	---	Jan-Dec	---	---	---	---	None	---	None
W:									
Water.									
WdrA:									
Wawaka----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
WdrB2:									
Wawaka----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
WdrC2:									
Wawaka----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
WdrD2:									
Wawaka----------------	B	Jan-Dec	>6.0	>6.0	---	---	None	---	None
WmnA:									
Waynetown-------------	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
WofB:									
Williamstown----------	C	Jan-Mar	1.0-2.5	2.0-3.3	---	---	None	---	None
		Apr	1.5-2.5	2.0-3.3	---	---	None	---	None
		May	1.5-3.0	2.0-3.3	---	---	None	---	None
		Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct	1.5-3.3	2.0-3.3	---	---	None	---	None
		Nov	1.5-3.0	2.0-3.3	---	---	None	---	None
		Dec	1.0-2.5	2.0-3.3	---	---	None	---	None
Crosby----------------	C	Jan-Mar	0.5-2.0	2.0-3.3	---	---	None	---	None
		Apr	0.5-3.0	2.0-3.3	---	---	None	---	None
		May-Jun	1.5-3.3	2.0-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.3	2.0-3.3	---	---	None	---	None
		Dec	0.5-3.0	2.0-3.3	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
WqvA:									
Westland	B	Jan-Mar	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
		Apr	0.5-1.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jun	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Jul-Sep	>6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Oct	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Nov	2.0-3.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		Dec	0.0-0.5	>6.0	0.0-0.5	Long	Frequent	---	None
WtaA:									
Whitaker	C	Jan-Mar	0.5-2.0	>6.0	---	---	None	---	None
		Apr	0.5-3.0	>6.0	---	---	None	---	None
		May-Jun	1.5-3.5	>6.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	1.5-3.5	>6.0	---	---	None	---	None
		Dec	0.5-3.0	>6.0	---	---	None	---	None
XfuB2:									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
Rainsville	B	Jan-Apr	2.0-3.5	3.5-5.0	---	---	None	---	None
		May-Jun	3.5-4.5	3.5-5.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	3.5-4.5	3.5-5.0	---	---	None	---	None
		Dec	2.0-3.5	3.5-5.0	---	---	None	---	None
XfuC2:									
Miami	B	Jan-Apr	2.0-3.0	2.5-3.3	---	---	None	---	None
		May-Jun	2.5-3.0	2.5-3.3	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	2.5-3.0	2.5-3.3	---	---	None	---	None
		Dec	2.0-3.0	2.5-3.3	---	---	None	---	None
Rainsville	B	Jan-Apr	2.0-3.5	3.5-5.0	---	---	None	---	None
		May-Jun	3.5-4.5	3.5-5.0	---	---	None	---	None
		Jul-Sep	>6.0	>6.0	---	---	None	---	None
		Oct-Nov	3.5-4.5	3.5-5.0	---	---	None	---	None
		Dec	2.0-3.5	3.5-5.0	---	---	None	---	None

Table 20.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Potential for soil slippage	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total			Uncoated steel	Concrete
		In	*In*		*In*	*In*				
CbaA:										
Camden	---	---	---	---	0	0	High	---	Moderate	Moderate
CudA:										
Crosby	Dense material	20-40	---	---	0	0	High	---	High	Moderate
CxdA:										
Cyclone	---	---	---	---	0	0	High	---	High	Low
EdeAW:										
Eel	---	---	---	---	0	0	Moderate	---	Moderate	Low
Beckville	---	---	---	---	0	0	Moderate	---	Moderate	Low
FdbA:										
Fincastle	Dense material	40-60	---	---	0	0	High	---	High	Moderate
FdhA:										
Fincastle	Dense material	40-60	---	---	0	0	High	---	High	Moderate
Crosby	Dense material	20-40	---	---	0	0	High	---	High	Moderate
FexB2:										
Fox	Strongly contrasting textural stratification	20-40	---	---	0	0	Moderate	---	Moderate	Moderate
FexC2:										
Fox	Strongly contrasting textural stratification	20-40	---	---	0	0	Moderate	Low	Moderate	Moderate
MamA:										
Mahalasville	---	---	---	---	0	0	High	---	High	Low
MaoA:										
Mahalaland	Strongly contrasting textural stratification	40-60	---	---	0	0	High	---	High	Low
MjkAH:										
Medway	---	---	---	---	0	0	Moderate	---	Moderate	Low
Beckville	---	---	---	---	0	0	Moderate	---	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Potential for soil slippage	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	*In*		*In*	*In*				
MmoB3:										
Miami, severely eroded	Dense material	24-40	---	---	0	0	Moderate	---	Moderate	Moderate
MmoC3:										
Miami, severely eroded	Dense material	24-40	---	---	0	0	Moderate	Low	Moderate	Moderate
MmoD3:										
Miami, severely eroded	Dense material	24-40	---	---	0	0	Moderate	Medium	Moderate	Moderate
MnpB2:										
Miami	Dense material	24-40	---	---	0	0	Moderate	---	Moderate	Moderate
MnpC2:										
Miami	Dense material	24-40	---	---	0	0	Moderate	Low	Moderate	Moderate
MnpD2:										
Miami	Dense material	24-40	---	---	0	0	Moderate	Medium	Moderate	Moderate
ObxA:										
Ockley	Strongly contrasting textural stratification	40-72	---	---	0	0	Moderate	---	Moderate	Moderate
ObxB2:										
Ockley	Strongly contrasting textural stratification	40-72	---	---	0	0	Moderate	---	Moderate	Moderate
Ppu:										
Pits, sand and gravel.										
RqpG:										
Rodman	Strongly contrasting textural stratification	10-20	---	---	0	0	Low	Medium	Low	Low
Rock outcrop	Bedrock (lithic)	0	---	Indurated	0	0	---	---	---	---
RtuAH:										
Rossburg	---	---	---	---	0	0	Moderate	---	Low	Low
Landes	---	---	---	---	0	0	Moderate	---	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Potential for soil slippage	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total			Uncoated steel	Concrete
		In	*In*		*In*	*In*				
SigE2:										
Senachwine	Dense material	24-40	---	---	0	0	Moderate	Medium	Low	Low
SldAH:										
Shoals	---	---	---	---	0	0	High	---	High	Low
SldAW:										
Shoals	---	---	---	---	0	0	High	---	High	Low
SngA:										
Sleeth	Strongly contrasting textural stratification	40-60	---	---	0	0	High	---	High	Moderate
SnlAP:										
Southwest	---	---	---	---	0	0	High	---	High	Low
SocAH:										
Sloan	---	---	---	---	0	0	High	---	High	Low
SocAW:										
Sloan	---	---	---	---	0	0	High	---	High	Low
SteA:										
Starks	---	---	---	---	0	0	High	---	High	Moderate
StjA:										
Starks	---	---	---	---	0	0	High	---	High	Moderate
Crosby	Dense material	20-40	---	---	0	0	High	---	High	Moderate
SvqG:										
Strawn	---	---	---	---	0	0	Moderate	Medium	Moderate	Low
SvzG:										
Strawn	---	---	---	---	0	0	Moderate	Medium	Moderate	Low
Rock outcrop	Bedrock (lithic)	0	---	Indurated	0	0	---	---	---	---
ThrA:										
Treaty	---	---	---	---	0	0	High	---	High	Low
Uaz:										
Udorthents, sandy.										
Uby:										
Udorthents, loamy.										
UfnA:										
Urban land.										
Crosby	Dense material	20-40	---	---	0	0	High	---	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Potential for soil slippage	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In				
UfoA:										
Urban land.										
Cyclone	---	---	---	---	0	0	High	---	High	Low
UfxA:										
Urban land.										
Fincastle	Dense material	40-60	---	---	0	0	High	---	High	Moderate
UhuA:										
Urban land.										
Mahalasville	---	---	---	---	0	0	High	---	High	Low
UkbB:										
Urban land.										
Miami	Dense material	24-40	---	---	0	0	Moderate	---	Moderate	Moderate
UkbC:										
Urban land.										
Miami	Dense material	24-40	---	---	0	0	Moderate	Low	Moderate	Moderate
UkbD:										
Urban land.										
Miami	Dense material	24-40	---	---	0	0	Moderate	Medium	Moderate	Moderate
UkpA:										
Urban land.										
Ockley	Strongly contrasting textural stratification	40-72	---	---	0	0	Moderate	---	Moderate	Moderate
UkpB:										
Urban land.										
Ockley	Strongly contrasting textural stratification	40-72	---	---	0	0	Moderate	---	Moderate	Moderate
UmyA:										
Urban land.										
Treaty	---	---	---	---	0	0	High	---	High	Low
UnhA:										
Urban land.										

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Potential for soil slippage	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total			Uncoated steel	Concrete
		In	In		In	In				
UnhA:										
Wawaka-----------	Strongly contrasting textural stratification	60-120	---	---	0	0	Moderate	---	Moderate	Low
UnuA:										
Urban land.										
Whitaker---------	---	---	---	---	0	0	High	---	High	Moderate
UnvB:										
Urban land.										
Williamstown-----	Dense material	20-40	---	---	0	0	Moderate	---	High	Moderate
Crosby-----------	Dense material	20-40	---	---	0	0	High	---	High	Moderate
Usl:										
Udorthents, rubbish.										
W:										
Water.										
WdrA:										
Wawaka-----------	Strongly contrasting textural stratification	60-120	---	---	0	0	Moderate	---	Moderate	Low
WdrB2:										
Wawaka-----------	Strongly contrasting textural stratification	60-120	---	---	0	0	Moderate	---	Moderate	Low
WdrC2:										
Wawaka-----------	Strongly contrasting textural stratification	60-120	---	---	0	0	Moderate	Low	Moderate	Low
WdrD2:										
Wawaka-----------	Strongly contrasting textural stratification	60-120	---	---	0	0	Moderate	Medium	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Potential for soil slippage	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In				
WmnA:										
Waynetown	Strongly contrasting textural stratification	50-80	---	---	0	0	High	---	High	Moderate
WofB:										
Williamstown	Dense material	20-40	---	---	0	0	Moderate	---	High	Moderate
Crosby	Dense material	20-40	---	---	0	0	High	---	High	Moderate
WqvA:										
Westland	Strongly contrasting textural stratification	40-60	---	---	0	0	High	---	High	Low
WtaA:										
Whitaker	---	---	---	---	0	0	High	---	High	Moderate
XfuB2:										
Miami	Dense material	24-40	---	---	0	0	Moderate	---	Moderate	Moderate
Rainsville	Dense material	45-60	---	---	0	0	Moderate	---	Moderate	Moderate
XfuC2:										
Miami	Dense material	24-40	---	---	0	0	Moderate	Low	Moderate	Moderate
Rainsville	Dense material	40-60	---	---	0	0	Moderate	Low	Moderate	Moderate

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Beckville	Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Camden	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Crosby	Fine, mixed, active, mesic Aeric Epiaqualfs
Cyclone	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Eel	Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Fincastle	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Fox	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Mahalaland	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Mahalasville	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Medway	Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls
Miami	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Ockley	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Rainsville	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Rodman	Sandy-skeletal, mixed, mesic Typic Hapludolls
Rossburg	Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls
Senachwine	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Shoals	Fine-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts
Sleeth	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Sloan	Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls
Southwest	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Starks	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Strawn	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Treaty	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Udorthents, loamy	Udorthents
Udorthents, rubbish	Udorthents
Udorthents, sandy	Udorthents
Wawaka	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Waynetown	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Westland	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Whitaker	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Williamstown	Fine-loamy, mixed, active, mesic Aquic Hapludalfs

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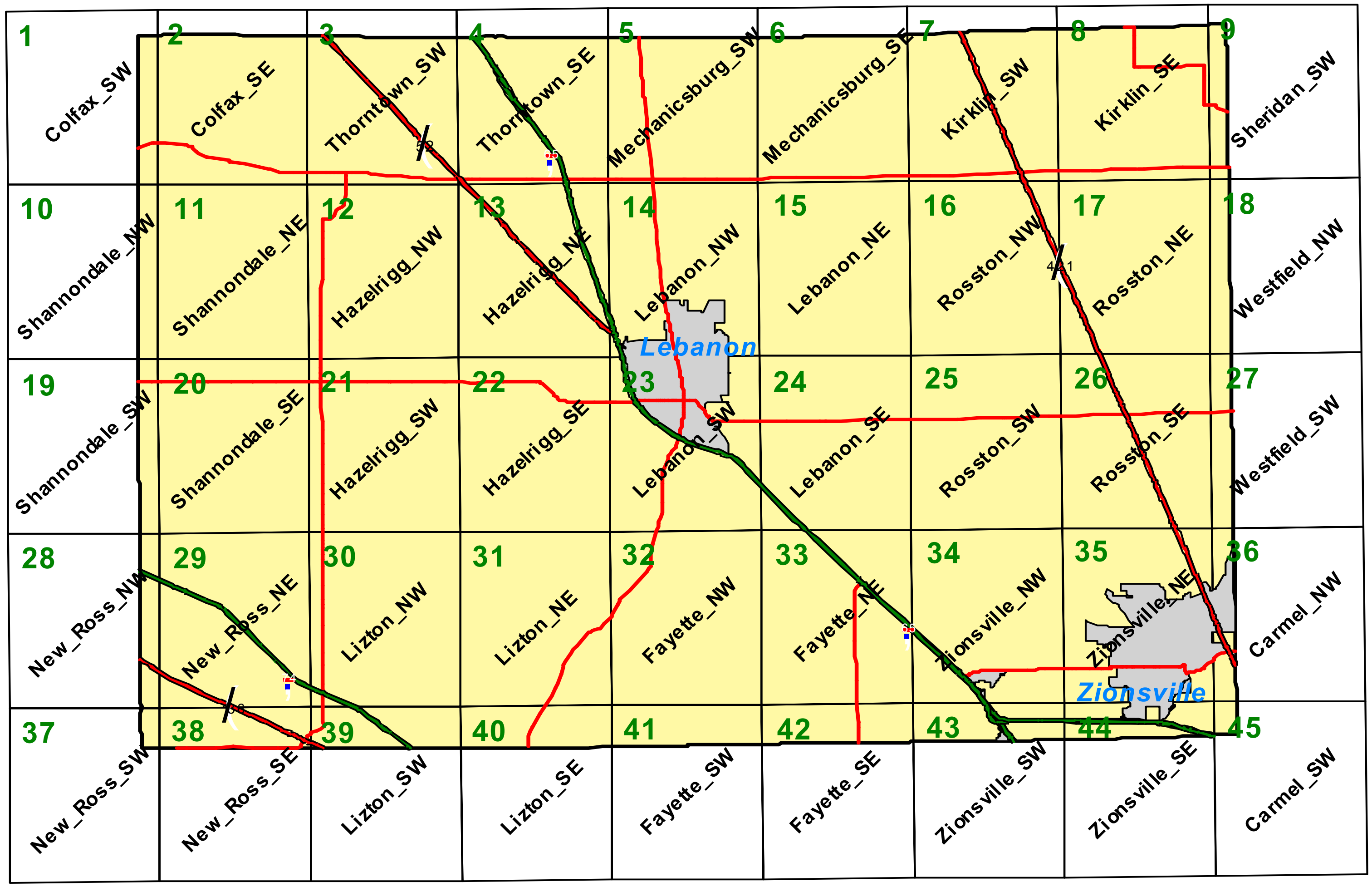
Boone County, Indiana



SOIL LEGEND

Map symbols consist of letters or a combination of letters and numbers. The initial letters represent the kind of soil. A capital letter following the first three letters indicates the class of slope. A capital letter following the letter representing the slope class indicates the frequency and duration of flooding or ponding; the letter H indicates that the soil is frequently flooded for brief periods; the letter W indicates that the soil is occasionally flooded for very brief periods; and the letter P indicates that the soil is ponded for brief periods. A final number of 2 indicates that the soil is moderately eroded, and a final number of 3 indicates that the soil is severely eroded. Absence of a final number indicates that the soil is slightly eroded or uneroded.

SYMBOL	NAME
CbaA	Camden silt loam, 0 to 2 percent slopes
CudA	Crosby silt loam, 0 to 2 percent slopes
CxdA	Cyclone silty clay loam, 0 to 1 percent slopes
EdeAW	Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, very brief duration
FdbA	Fincastle silt loam, 0 to 2 percent slopes
FdhA	Fincastle-Crosby silt loams, 0 to 2 percent slopes
FexB2	Fox loam, 2 to 6 percent slopes, eroded
FexC2	Fox loam, 6 to 12 percent slopes, eroded
MamA	Mahalasville silty clay loam, 0 to 1 percent slopes
MaoA	Mahalaland silty clay loam, 0 to 1 percent slopes
MjkAH	Medway and Beckville soils, 0 to 2 percent slopes, frequently flooded, brief duration
MmoB3	Miami clay loam, 2 to 6 percent slopes, severely eroded
MmoC3	Miami clay loam, 6 to 12 percent slopes, severely eroded
MmoD3	Miami clay loam, 12 to 18 percent slopes, severely eroded
MnpB2	Miami silt loam, 2 to 6 percent slopes, eroded
MnpC2	Miami silt loam, 6 to 12 percent slopes, eroded
MnpD2	Miami silt loam, 12 to 18 percent slopes, eroded
ObxA	Ockley silt loam, 0 to 2 percent slopes
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded
Ppu	Pits, sand and gravel
RqpG	Rodman-Rock outcrop complex, 35 to 70 percent slopes
RtuAH	Rossburg and Landes soils, 0 to 2 percent slopes, frequently flooded, brief duration
SigE2	Senachwine silt loam, 18 to 25 percent slopes, eroded
SldAH	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration
SldAW	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration
SngA	Sleeth silt loam, 0 to 2 percent slopes
SnlAP	Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration
SocAH	Sloan silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration
SocAW	Sloan silty clay loam, 0 to 1 percent slopes, occasionally flooded, very brief duration
SteA	Starks silt loam, 0 to 2 percent slopes
StjA	Starks-Crosby silt loams, 0 to 2 percent slopes
SvqG	Strawn loam, 25 to 70 percent slopes
SvzG	Strawn-Rock outcrop complex, 35 to 70 percent slopes
ThrA	Treaty silty clay loam, 0 to 1 percent slopes
Uaz	Udorthents, sandy
Uby	Udorthents, loamy
UfnA	Urban land-Crosby complex, 0 to 2 percent slopes
UfoA	Urban land-Cyclone complex, 0 to 1 percent slopes
UfxA	Urban land-Fincastle complex, 0 to 2 percent slopes
UhuA	Urban land-Mahalasville complex, 0 to 1 percent slopes
UkbB	Urban land-Miami complex, 2 to 6 percent slopes
UkbC	Urban land-Miami complex, 6 to 12 percent slopes
UkbD	Urban land-Miami complex, 12 to 18 percent slopes
UkpA	Urban land-Ockley complex, 0 to 2 percent slopes
UkpB	Urban land-Ockley complex, 2 to 6 percent slopes
UmyA	Urban land-Treaty complex, 0 to 1 percent slopes
UnhA	Urban land-Wawaka complex, 0 to 2 percent slopes
UnuA	Urban land-Whitaker complex, 0 to 2 percent slopes
UnvB	Urban land-Williamstown-Crosby complex, 2 to 4 percent slopes
Usl	Udorthents, rubbish
W	Water
WdrA	Wawaka silt loam, 0 to 2 percent slopes
WdrB2	Wawaka silt loam, 2 to 6 percent slopes, eroded
WdrC2	Wawaka silt loam, 6 to 12 percent slopes, eroded
WdrD2	Wawaka silt loam, 12 to 18 percent slopes, eroded
WmnA	Waynetown silt loam, 0 to 2 percent slopes
WofB	Williamstown-Crosby silt loams, 2 to 4 percent slopes
WqvA	Westland silty clay loam, 0 to 1 percent slopes
WtaA	Whitaker silt loam, 0 to 2 percent slopes
XfuB2	Miami-Rainsville complex, 2 to 6 percent slopes, eroded
XfuC2	Miami-Rainsville complex, 6 to 12 percent slopes, eroded

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

County or parish

Minor civil division

Field sheet matchline & neatline

OTHER BOUNDARY (label)

Airport

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

ROAD EMBLEM & DESIGNATIONS

Interstate 173 79 345

Federal 287 410 224

State 52 52 347

HYDROGRAPHIC FEATURES

STREAMS

Perennial, double line

Unclassified, single line

Drainage end

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS CbaA ObxA

LANDFORM FEATURES

ESCARPMENTS

Bedrock

Other than bedrock

SHORT STEEP SLOPE

EXCAVATIONS

PITS

Gravel pit

MISCELLANEOUS SURFACE FEATURES

Sandy spot

Severely eroded spot

Wet spot

Muck spot

Unclassified water

Descriptions of Special Features

Name	Description	Label
Blowout	A small saucer, cup, or trough-shaped hollow or depression formed by wind erosion, on a preexisting sand deposit. Typically 0.2 acre to 2.0 acres.	BLO
Borrow pit	An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically 0.2 acre to 2.0 acres.	BPI
Clay spot	A spot where the surface layer is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser. Typically 0.2 acre to 2.0 acres.	CLA
Depression, closed	A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and is without a natural outlet for surface drainage. Typically 0.2 acre to 2.0 acres.	DEP
Escarpment, bedrock	A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.	ESB
Escarpment, nonbedrock	A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.	ESO
Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 0.2 acre to 2.0 acres.	GPI
Gravelly spot	A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area with less than 15 percent rock fragments. Typically 0.2 acre to 2.0 acres.	GRA
Gully	A small channel with steep sides cut by running water through which water ordinarily runs only after a rain or after melting of ice or snow. It generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage.	GUL
Iron accumulation	An accumulation of iron in the form of nodules, concretions, or soft masses on the surface or near the surface of soils. Typically 0.2 acre to 2.0 acres.	FES
Landfill	An area of accumulated waste products of human habitation, either above or below natural ground level. Typically 0.2 acre to 2.0 acres.	LDF
Lava flow	A solidified body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure. Commonly lobate in shape. Typically 0.2 acre to 2.0 acres.	LAV
Levee	An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands. Levees built according to COE standards.	LVS

Name	Description	Label
Marsh or swamp	A water-saturated, very poorly drained area, intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marsh areas, and trees or shrubs are the dominant vegetation in swamps. Typically 0.2 acre to 2.0 acres.	MAR
Mine or quarry	An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically 0.2 acre to 2.0 acres.	MPI
Miscellaneous water	A small, constructed water area that is used for industrial, sanitary, or mining applications and contains water most of the year. Typically 0.2 acre to 2.0 acres.	MIS
Muck spot	An area that occurs within an area of poorly drained or very poorly drained soil and that has a histic epipedon or an organic surface layer. The symbol is used only in map units consisting of mineral soil. Typically 0.2 acre to 2.0 acres.	MUC
Oil brine damaged land	An area of soil that has been severely damaged by the accumulation of oil brine, with or without liquid oily wastes. The area is typically barren but may have a vegetative cover of salt-tolerant plants. Typically 0.2 acre to 2.0 acres.	OBR
Perennial water	A small, natural or constructed lake, pond, or pit that contains water most of the year. Typically 0.2 acre to 2.0 acres.	WAT
Rock outcrop	An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit. Typically 0.2 acre to 2.0 acres.	ROC
Saline spot	An area where the surface layer has an electrical conductivity of 8 mmhos/cm-1 more than the surface layer of the named soils in the surrounding map unit, in which electrical conductivity is 2 mmhos/cm-l or less. Typically 0.2 acre to 2.0 acres.	SAL
Sandy spot	A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer. Typically 0.2 acre to 2.0 acres.	SAN
Severely eroded spot	An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name. Typically 0.2 acre to 2.0 acres	ERO
Short, steep slope	A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.	SLP
Sinkhole	A closed depression formed either by solution of the surficial rock or by collapse of underlying caves. Typically 0.2 acre to 2.0 acres.	SNK
Slide or slip	A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically 0.2 acre to 2.0 acres.	SLI

Name	Description	Label
Sodic spot	An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit, which have a sodium adsorption ratio of 5 or less. Typically 0.2 acre to 2.0 acres.	SOD
Spoil area	A pile of earthy materials, either smoothed or uneven, resulting from human activity. Typically 0.2 acre to 2.0 acres.	SPO
Stony spot	A spot where 0.01 to 0.1 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically 0.2 acre to 2.0 acres.	STN
Unclassified water	A small, natural or manmade lake, pond, or pit that contains water, of an unspecified nature, most of the year. Typically 0.2 acre to 2.0 acres.	UWT
Very stony spot	A spot where 0.1 to 3.0 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surface cover of the surrounding soil is less than 0.01 percent stones. Typically 0.2 acre to 2.0 acres.	STV
Wet depression	A shallow, concave area within an area of poorly drained or very poorly drained soils in which water is ponded for intermittent periods. The concave area is saturated for appreciably longer periods of time than the surrounding soil. Typically 0.2 acre to 2.0 acres.	WDP
Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically 0.2 acre to 2.0 acres.	WET

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
COLFAX SW QUADRANGLE
SHEET NUMBER 1 OF 45

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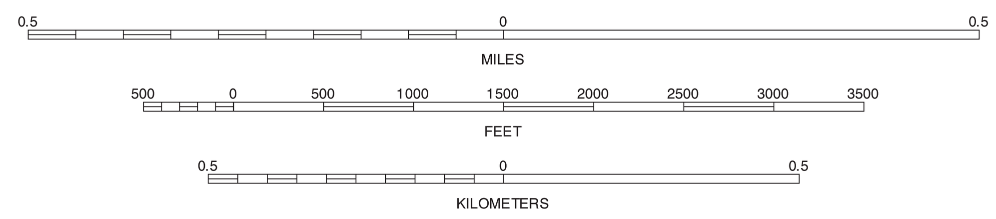
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 KIRKPATRICK NE (MONTGOMERY COUNTY)
2 COLFAX NW (MONTGOMERY COUNTY)
3 COLFAX NE (CLINTON COUNTY)
4 KIRKPATRICK SE (MONTGOMERY COUNTY)
5 COLFAX SE (SHEET 2)
6 DARLINGTON NE (MONTGOMERY COUNTY)
7 SHANNONDALE NW (SHEET 10)
8 SHANNONDALE NE (SHEET 11)

INDEX TO ADJOINING 3.75 MAPS

COLFAX SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

86° 41′15″ | 527 000m E | 528 | 529 | R. 2 W. | 530 | 531 | 86° 37′30″

40°11′15″ | 40°11′15″

40° 07′30″ | 40° 07′30″

86° 41′15″ | 527 000m E | 528 | 529 | R. 2 W. | 530 | 531 | 86° 37′30″

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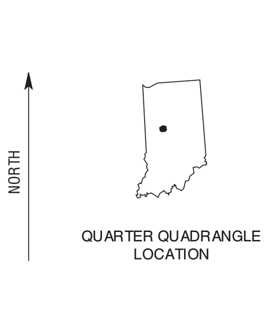

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 | 0 | 0.5
MILES

500 | 0 | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500
FEET

0.5 | 0 | 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 COLFAX NW (MONTGOMERY COUNTY)
2 COLFAX NE (CLINTON COUNTY)
3 THORNTOWN NW (CLINTON COUNTY)
4 COLFAX SW (SHEET 1)
5 THORNTOWN SW (SHEET 3)
6 SHANNONDALE NW (SHEET 10)
7 SHANNONDALE NE (SHEET 11)
8 HAZELRIGG NW (SHEET 12)

INDEX TO ADJOINING 3.75 MAPS

COLFAX SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
THORNTOWN SW QUADRANGLE
SHEET NUMBER 3 OF 45

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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 COLFAX NE (CLINTON COUNTY)
2 THORNTOWN NW (CLINTON COUNTY)
3 THORNTOWN NE (CLINTON COUNTY)
4 COLFAX SE (SHEET 2)
5 THORNTOWN SE (SHEET 4)
6 SHANNONDALE NE (SHEET 11)
7 HAZELRIGG NW (SHEET 12)
8 HAZELRIGG NE (SHEET 13)

INDEX TO ADJOINING 3.75 MAPS

THORNTOWN SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 3 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
THORNTOWN SE QUADRANGLE
SHEET NUMBER 4 OF 45

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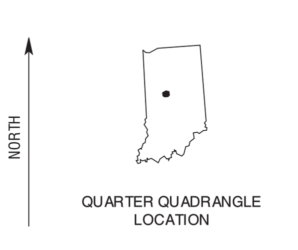
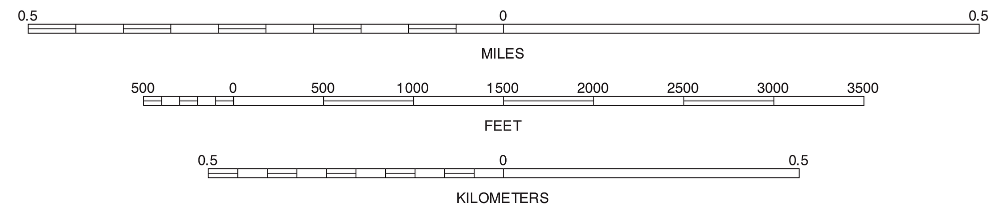


QUARTER QUADRANGLE
LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 THORNTOWN NW (CLINTON COUNTY)
2 THORNTOWN NE (CLINTON COUNTY)
3 MECHANICSBURG NW (CLINTON COUNTY)
4 THORNTOWN SW (SHEET 3)
5 MECHANICSBURG SW (SHEET 5)
6 HAZELRIGG NW (SHEET 12)
7 HAZELRIGG NE (SHEET 13)
8 LEBANON NW (SHEET 14)

INDEX TO ADJOINING 3.75 MAPS

THORNTOWN SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 45

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 THORNTOWN NE (CLINTON COUNTY)
2 MECHANICSBURG NW (CLINTON COUNTY)
3 MECHANICSBURG NE (CLINTON COUNTY)
4 THORNTOWN SE (SHEET 4)
5 MECHANICSBURG SE (SHEET 6)
6 HAZELRIGG NE (SHEET 13)
7 LEBANON NW (SHEET 14)
8 LEBANON NE (SHEET 15)

INDEX TO ADJOINING 3.75 MAPS

MECHANICSBURG SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 45

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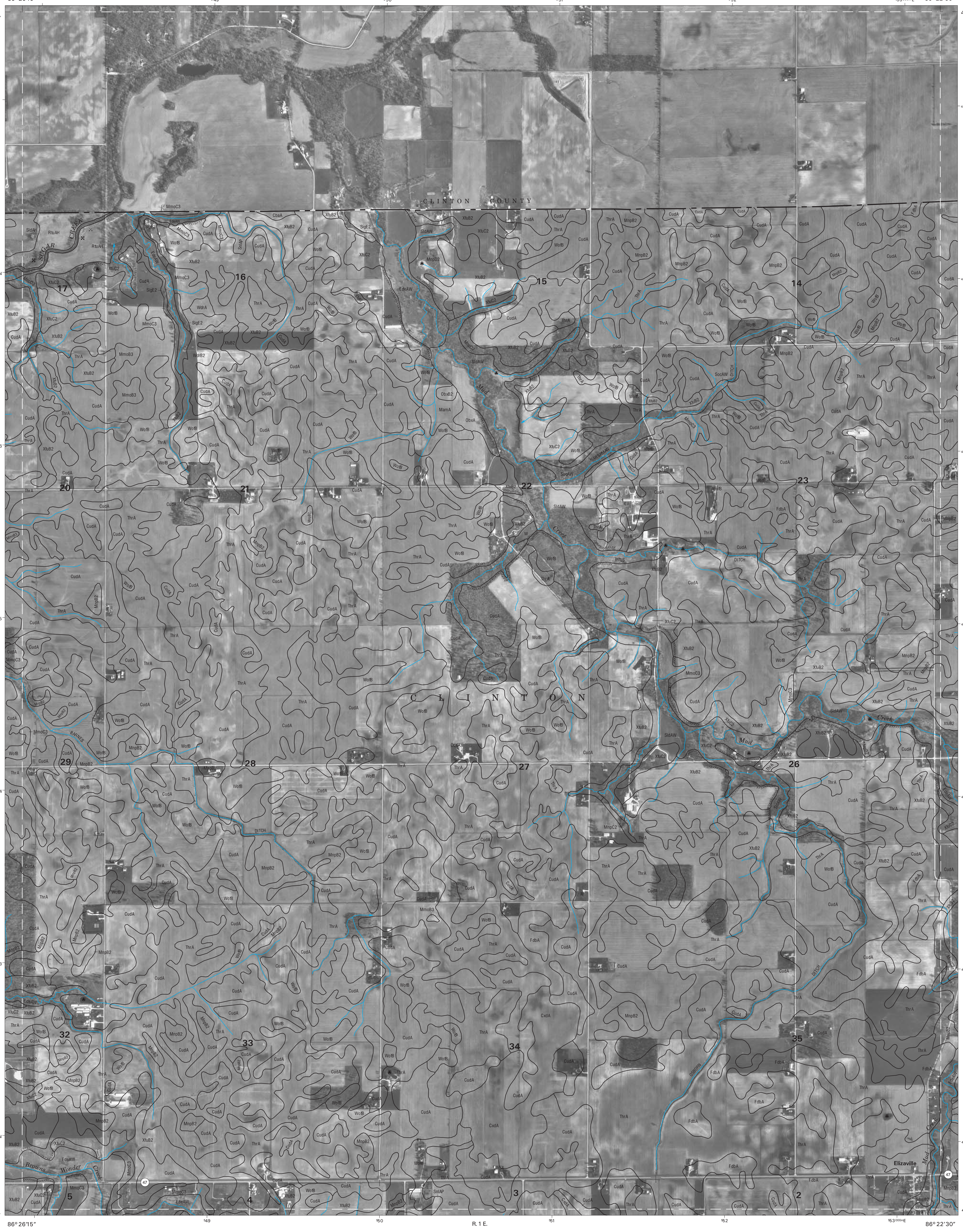
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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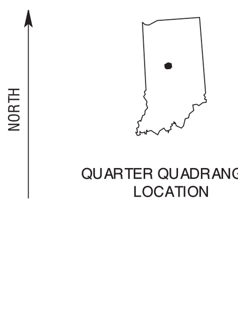
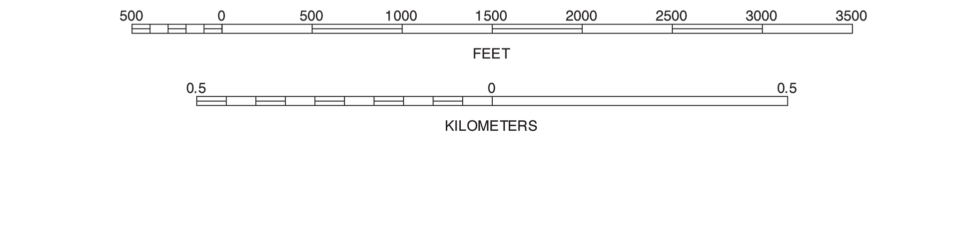


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MECHANICSBURG NW (CLINTON COUNTY)
2 MECHANICSBURG NE (CLINTON COUNTY)
3 KIRKLIN NW (CLINTON COUNTY)
4 MECHANICSBURG SW (SHEET 5)
5 KIRKLIN SW (SHEET 7)
6 LEBANON NW (SHEET 14)
7 LEBANON NE (SHEET 15)
8 ROSSTON NW (SHEET 16)

INDEX TO ADJOINING 3.75 MAPS

MECHANICSBURG SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 45

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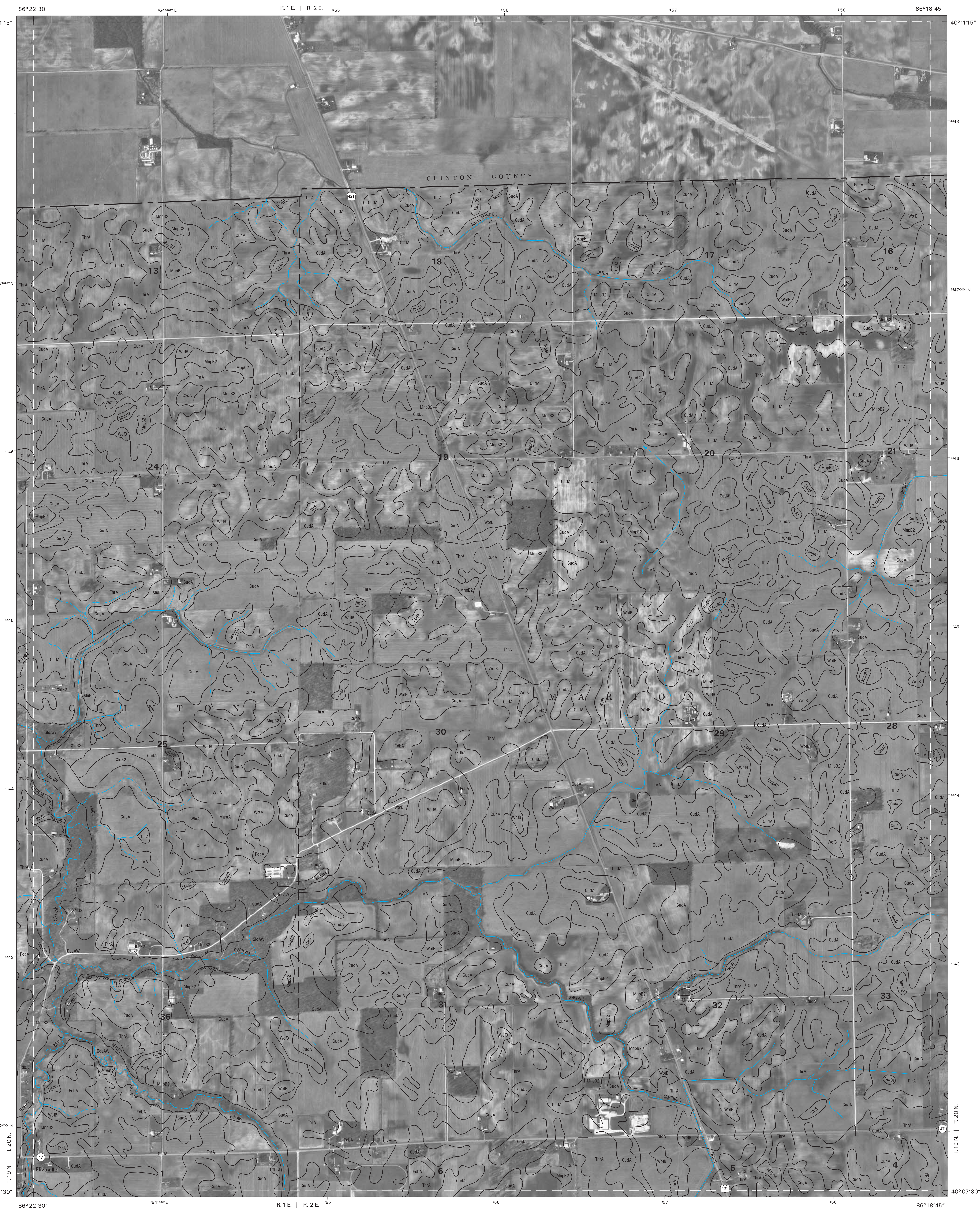

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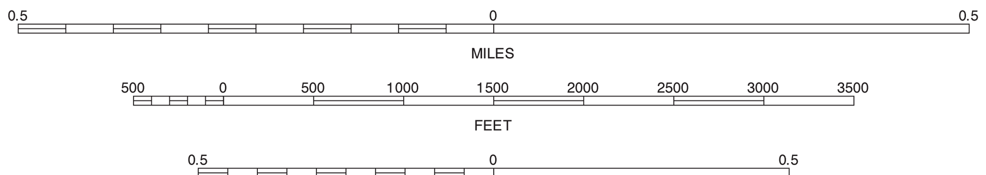

1	2	3
4		5
6	7	8

1 MECHANICSBURG NE (CLINTON COUNTY)
2 KIRKLIN NW (CLINTON COUNTY)
3 KIRKLIN NE (CLINTON COUNTY)
4 MECHANICSBURG SE (SHEET 6)
5 KIRKLIN SE (SHEET 8)
6 LEBANON NE (SHEET 15)
7 ROSSTON NW (SHEET 16)
8 ROSSTON NE (SHEET 17)

INDEX TO ADJOINING 3.75 MAPS

KIRKLIN SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 7 OF 45

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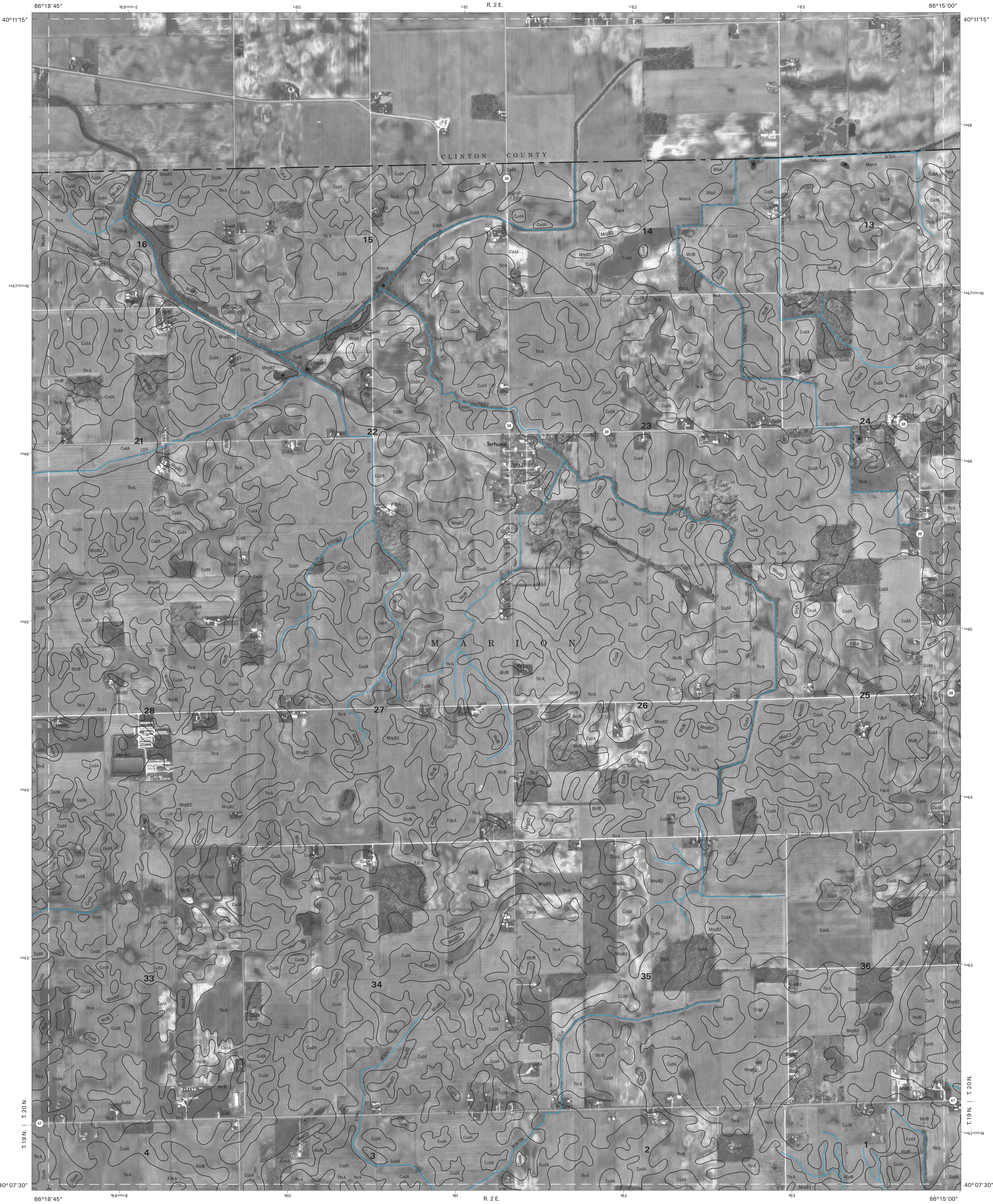

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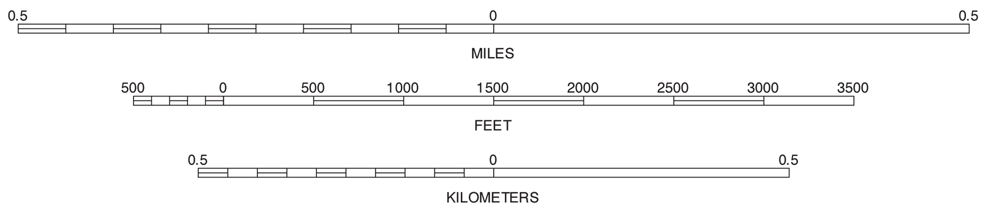

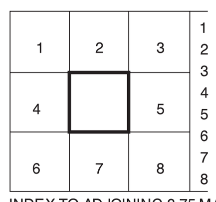

1 KIRKLIN NW (CLINTON COUNTY)
2 KIRKLIN NE (CLINTON COUNTY)
3 SHERIDAN NW (HAMILTON COUNTY)
4 KIRKLIN SW (SHEET 7)
5 SHERIDAN SW (SHEET 9)
6 ROSSTON NW (SHEET 16)
7 ROSSTON NE (SHEET 17)
8 WESTFIELD NW (SHEET 18)

INDEX TO ADJOINING 3.75 MAPS

KIRKLIN SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
SHERIDAN SW QUADRANGLE
SHEET NUMBER 9 OF 45

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QUARTER QUADRANGLE LOCATION

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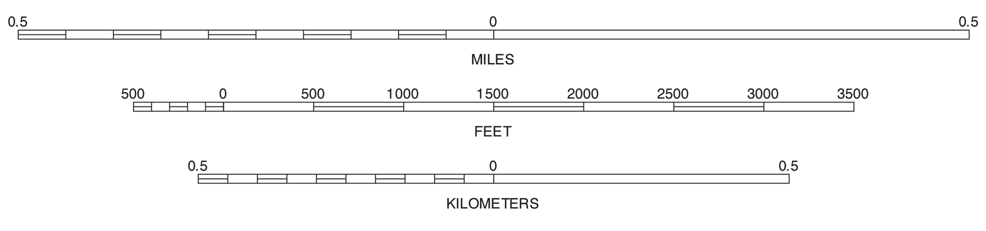

1	2	3
4		5
6	7	8

1 KIRKLIN NE (CLINTON COUNTY)
2 SHERIDAN NW (HAMILTON COUNTY)
3 SHERIDAN NE (HAMILTON COUNTY)
4 KIRKLIN SE (SHEET 8)
5 SHERIDAN SE (HAMILTON COUNTY)
6 ROSSTON NE (SHEET 17)
7 WESTFIELD NW (SHEET 18)
8 WESTFIELD NE (HAMILTON COUNTY)

INDEX TO ADJOINING 3.75 MAPS

SHERIDAN SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 9 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
SHANNONDALE NW QUADRANGLE
SHEET NUMBER 10 OF 45

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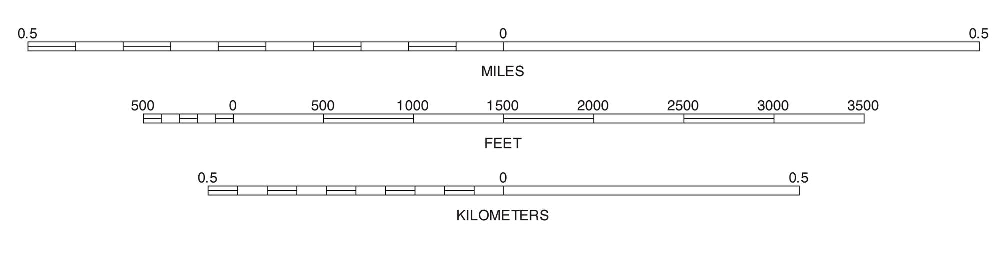
QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 KIRKPATRICK SE (MONTGOMERY COUNTY)
2 COLFAX SW (SHEET 1)
3 COLFAX SE (SHEET 2)
4 DARLINGTON NE (MONTGOMERY COUNTY)
5 SHANNONDALE NE (SHEET 11)
6 DARLINGTON SE (MONTGOMERY COUNTY)
7 SHANNONDALE SW (SHEET 19)
8 SHANNONDALE SE (SHEET 20)

INDEX TO ADJOINING 3.75 MAPS

SHANNONDALE NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 10 OF 45

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UNITED STATES
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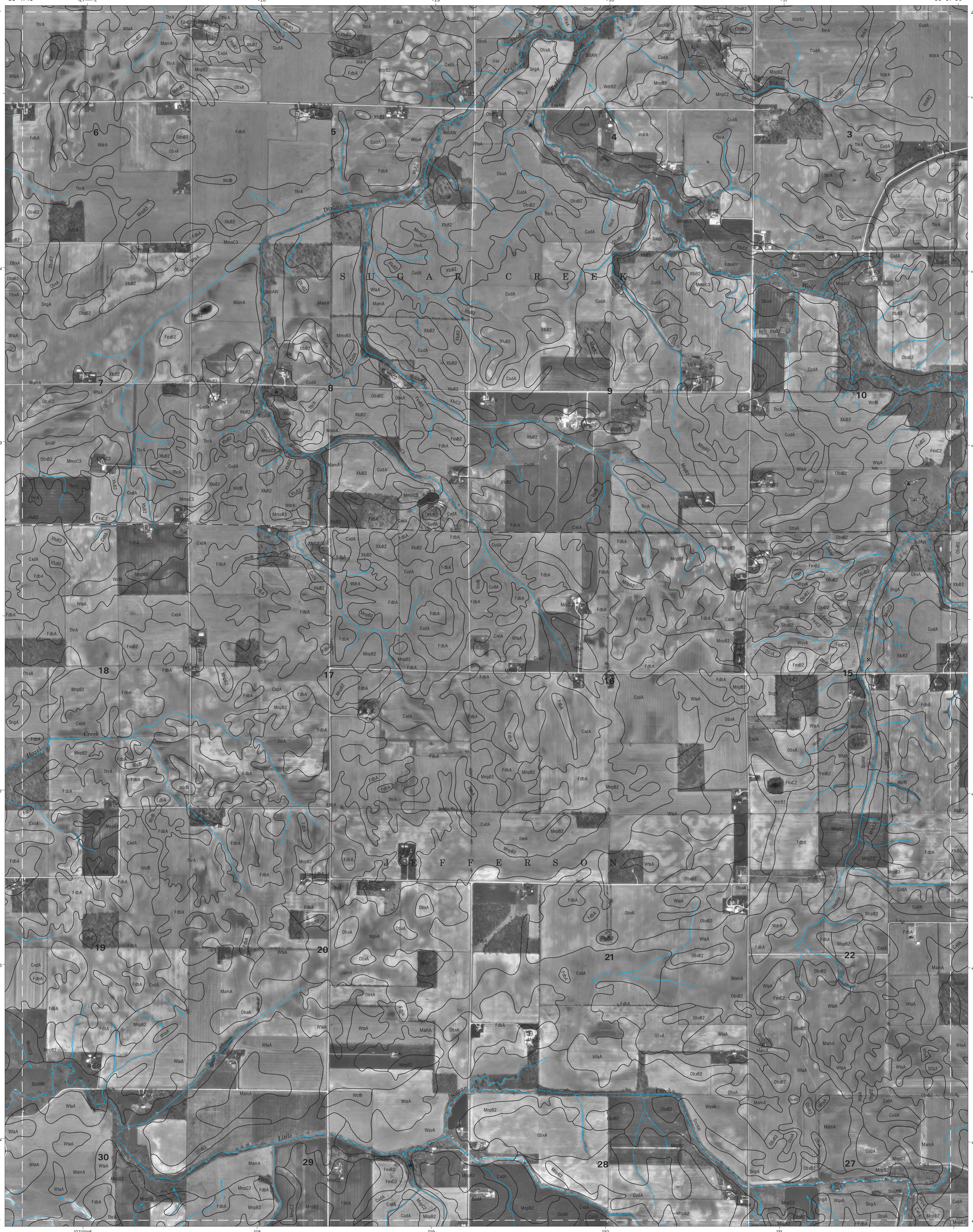
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
SHANNONDALE NE QUADRANGLE
SHEET NUMBER 11 OF 45



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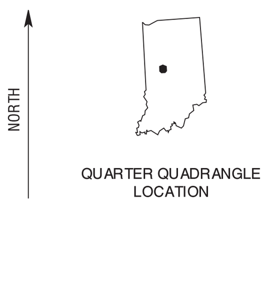
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 COLFAX SW (SHEET 1)
2 COLFAX SE (SHEET 2)
3 THORNTOWN SW (SHEET 3)
4 SHANNONDALE NW (SHEET 10)
5 HAZELRIGG NW (SHEET 12)
6 SHANNONDALE SW (SHEET 19)
7 SHANNONDALE SE (SHEET 20)
8 HAZELRIGG SW (SHEET 21)

INDEX TO ADJOINING 3.75 MAPS

SHANNONDALE NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

86° 37′30″ | 533 | 534 | 535 | R. 2 W. | R. 1 W. | 536 | 537000m E | 86° 33′45″

40° 07′30″

40° 03′45″

86° 37′30″ | 533 | 534 | 535 | R. 2 W. | R. 1 W. | 536 | 537000m E | 86° 33′45″

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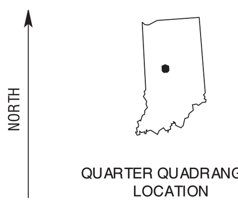
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 COLFAX SE (SHEET 2)
2 THORNTOWN SW (SHEET 3)
3 THORNTOWN SE (SHEET 4)
4 SHANNONDALE NE (SHEET 11)
5 HAZELRIGG NE (SHEET 13)
6 SHANNONDALE SE (SHEET 20)
7 HAZELRIGG SW (SHEET 21)
8 HAZELRIGG SE (SHEET 22)

INDEX TO ADJOINING 3.75 MAPS

HAZELRIGG NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 12 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
HAZELRIGG NE QUADRANGLE
SHEET NUMBER 13 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 THORNTOWN SW (SHEET 3)
2 THORNTOWN SE (SHEET 4)
3 MECHANICSBURG SW (SHEET 5)
4 HAZELRIGG NW (SHEET 12)
5 LEBANON NW (SHEET 14)
6 HAZELRIGG SW (SHEET 21)
7 HAZELRIGG SE (SHEET 22)
8 LEBANON SW (SHEET 23)

INDEX TO ADJOINING 3.75 MAPS

HAZELRIGG NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LEBANON NW QUADRANGLE
SHEET NUMBER 14 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 THORNTOWN SE (SHEET 4)
2 MECHANICSBURG SW (SHEET 5)
3 MECHANICSBURG SE (SHEET 6)
4 HAZELRIGG NE (SHEET 13)
5 LEBANON NE (SHEET 15)
6 HAZELRIGG SE (SHEET 22)
7 LEBANON SW (SHEET 23)
8 LEBANON SE (SHEET 24)

INDEX TO ADJOINING 3.75 MAPS

LEBANON NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 45

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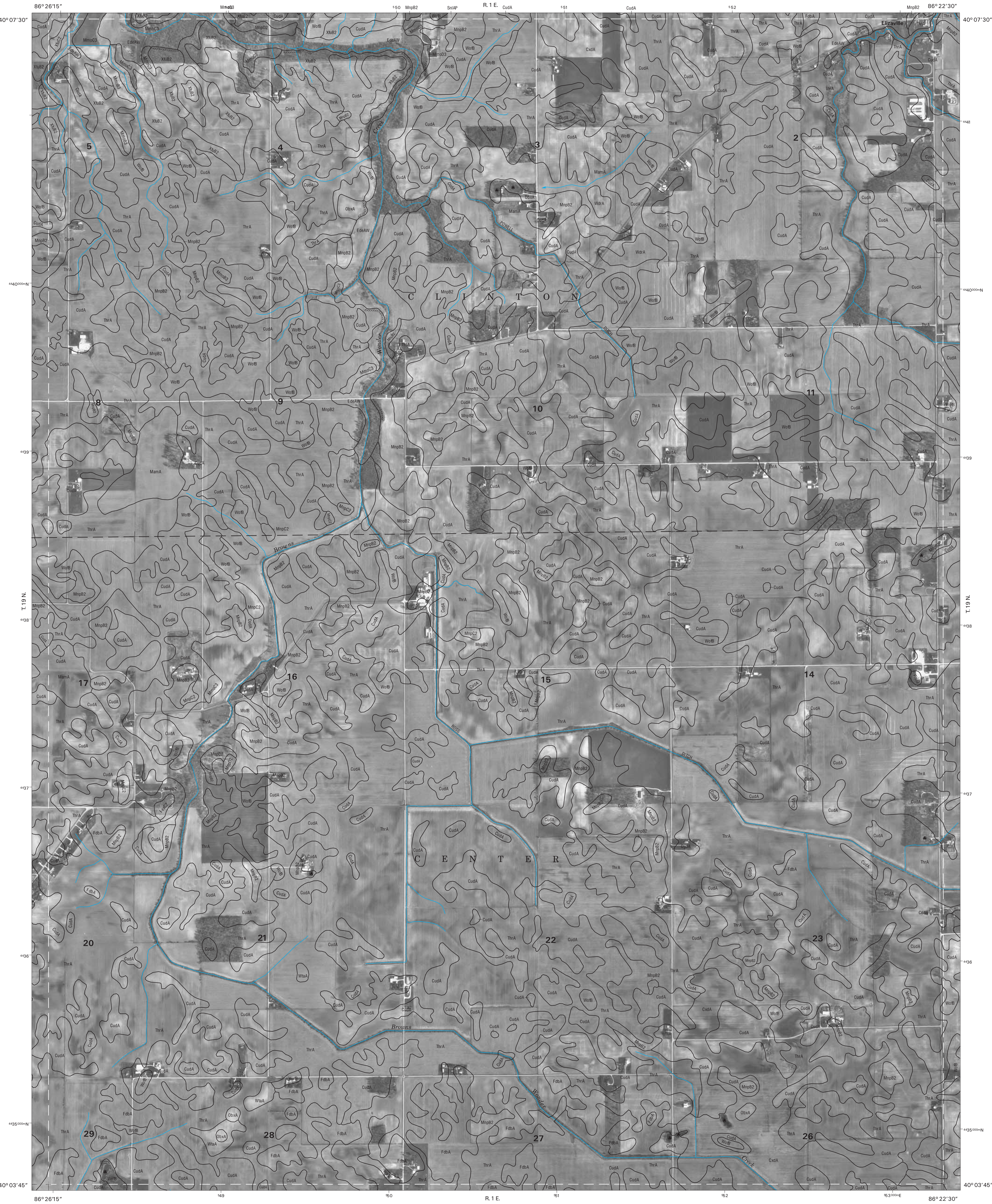
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LEBANON NE QUADRANGLE
SHEET NUMBER 15 OF 45



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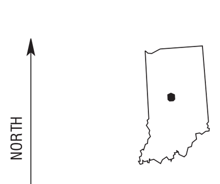

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 MECHANICSBURG SW (SHEET 5)
2 MECHANICSBURG SE (SHEET 6)
3 KIRKLIN SW (SHEET 7)
4 LEBANON NW (SHEET 14)
5 ROSSTON NW (SHEET 16)
6 LEBANON SW (SHEET 23)
7 LEBANON SE (SHEET 24)
8 ROSSTON SW (SHEET 25)

INDEX TO ADJOINING 3.75 MAPS

LEBANON NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 45

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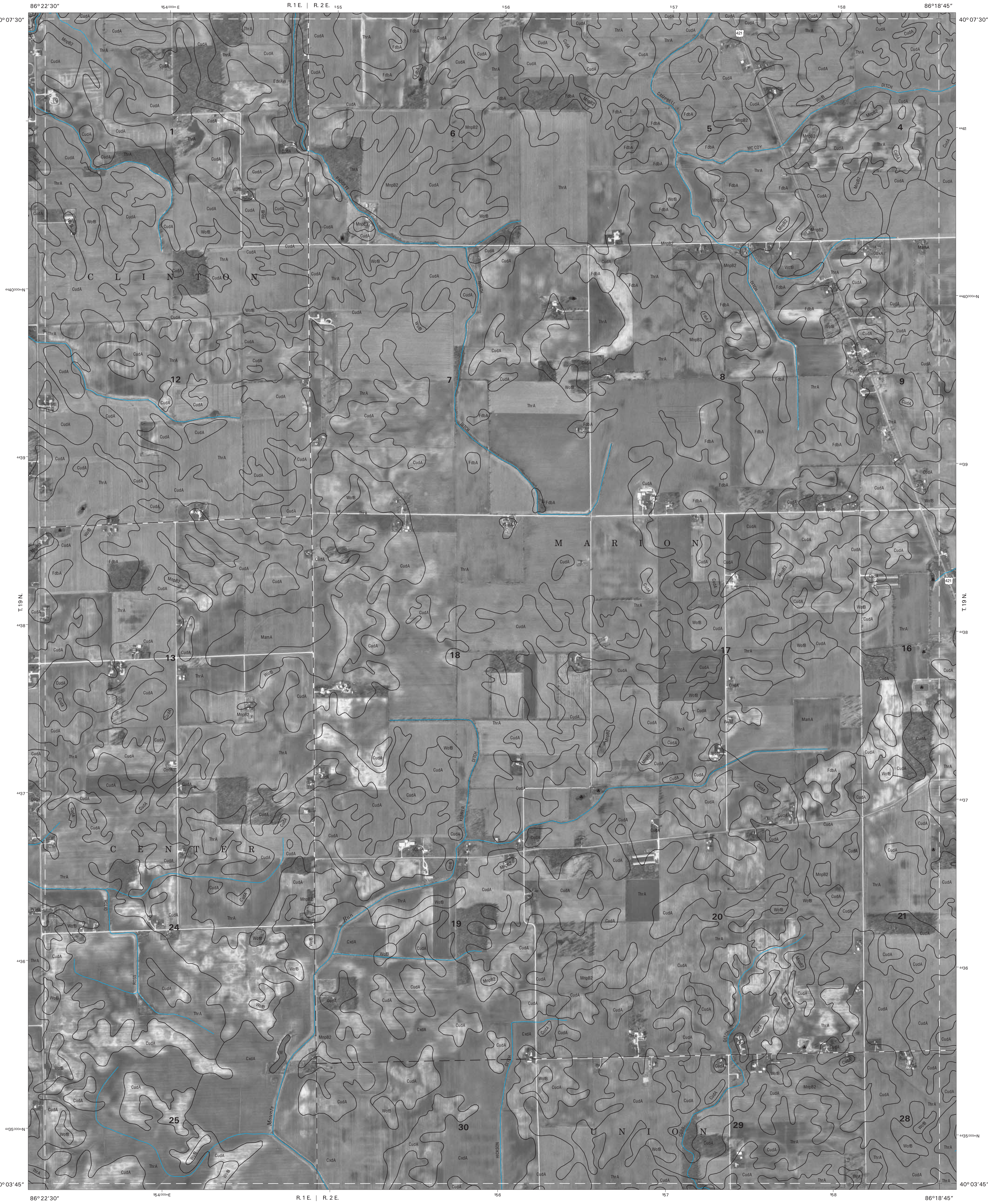
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3
4		5
6	7	8

1 MECHANICSBURG SE (SHEET 6)
2 KIRKLIN SW (SHEET 7)
3 KIRKLIN SE (SHEET 8)
4 LEBANON NE (SHEET 15)
5 ROSSTON NE (SHEET 17)
6 LEBANON SE (SHEET 24)
7 ROSSTON SW (SHEET 25)
8 ROSSTON SE (SHEET 26)

INDEX TO ADJOINING 3.75 MAPS

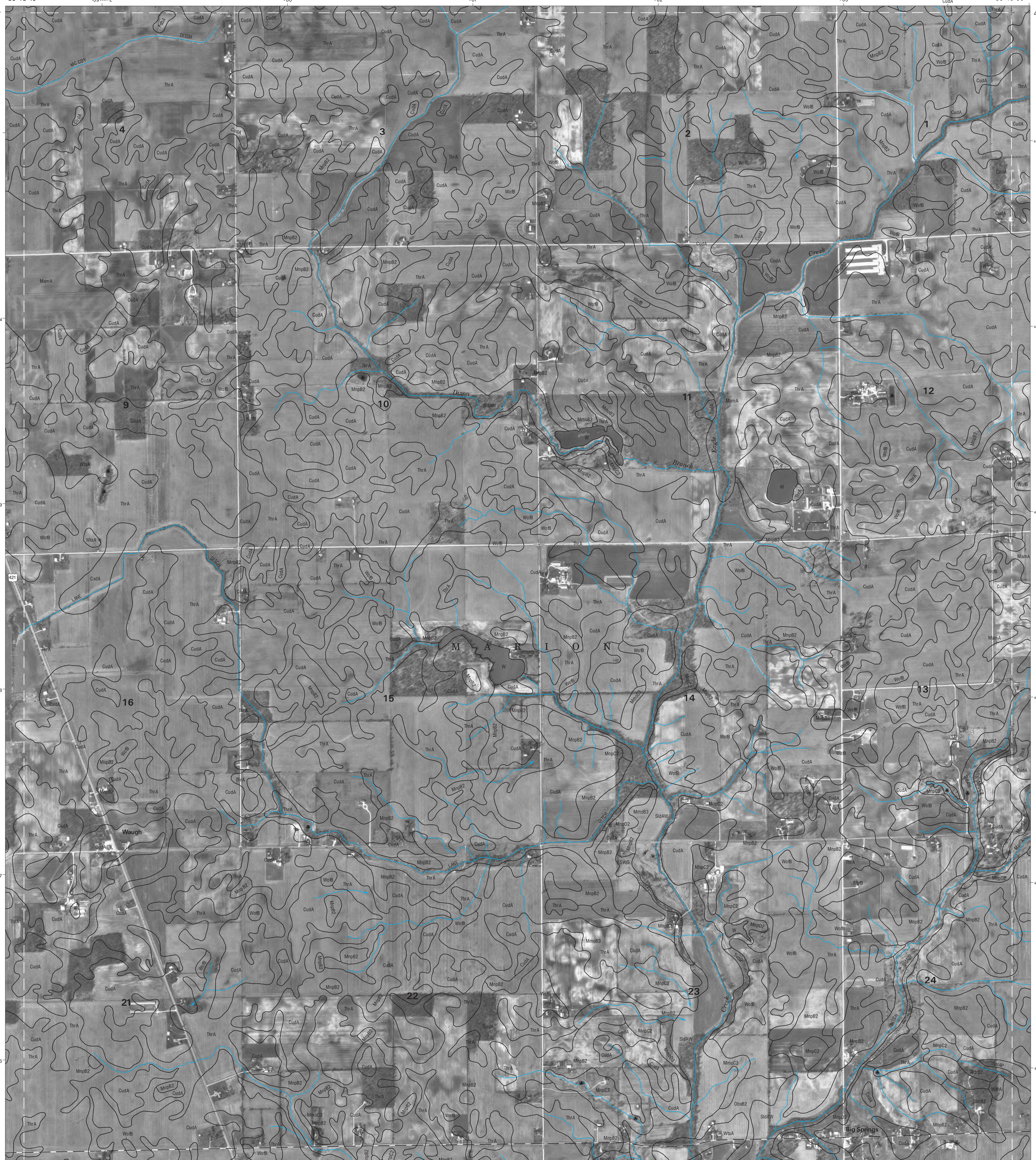
ROSSTON NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 16 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
ROSSTON NE QUADRANGLE
SHEET NUMBER 17 OF 45



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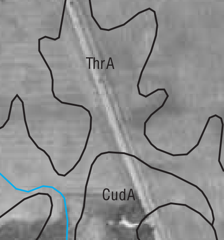
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 KIRKLIN SW (SHEET 7)
2 KIRKLIN SE (SHEET 8)
3 SHERIDAN SW (SHEET 9)
4 ROSSTON NW (SHEET 16)
5 WESTFIELD NW (SHEET 18)
6 ROSSTON SW (SHEET 25)
7 ROSSTON SE (SHEET 26)
8 WESTFIELD SW (SHEET 27)

INDEX TO ADJOINING 3.75 MAPS

ROSSTON NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 45

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
WESTFIELD NW QUADRANGLE
SHEET NUMBER 18 OF 45

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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 KIRKLIN SE (SHEET 8)
2 SHERIDAN SW (SHEET 9)
3 SHERIDAN SE (HAMILTON COUNTY)
4 ROSSTON NE (SHEET 17)
5 WESTFIELD NE (HAMILTON COUNTY)
6 ROSSTON SE (SHEET 26)
7 WESTFIELD SW (SHEET 27)
8 WESTFIELD SE (HAMILTON COUNTY)

INDEX TO ADJOINING 3.75 MAPS

WESTFIELD NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
SHANNONDALE SW QUADRANGLE
SHEET NUMBER 19 OF 45

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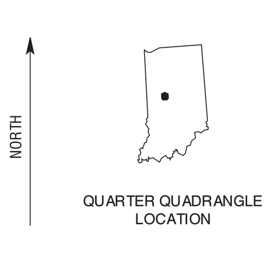
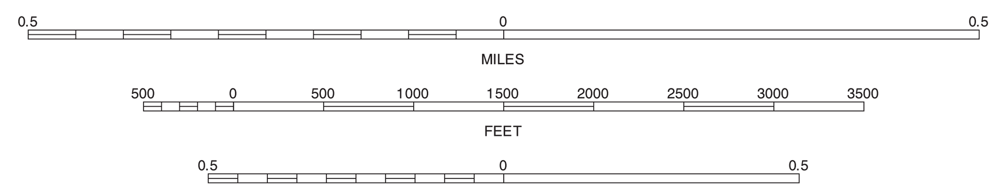


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 DARLINGTON NE (MONTGOMERY COUNTY)
2 SHANNONDALE NW (SHEET 10)
3 SHANNONDALE NE (SHEET 11)
4 DARLINGTON SE (MONTGOMERY COUNTY)
5 SHANNONDALE SE (SHEET 20)
6 LADOGA NE (MONTGOMERY COUNTY)
7 NEW ROSS NW (SHEET 28)
8 NEW ROSS NE (SHEET 29)

INDEX TO ADJOINING 3.75 MAPS

SHANNONDALE SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 19 OF 45

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UNITED STATES
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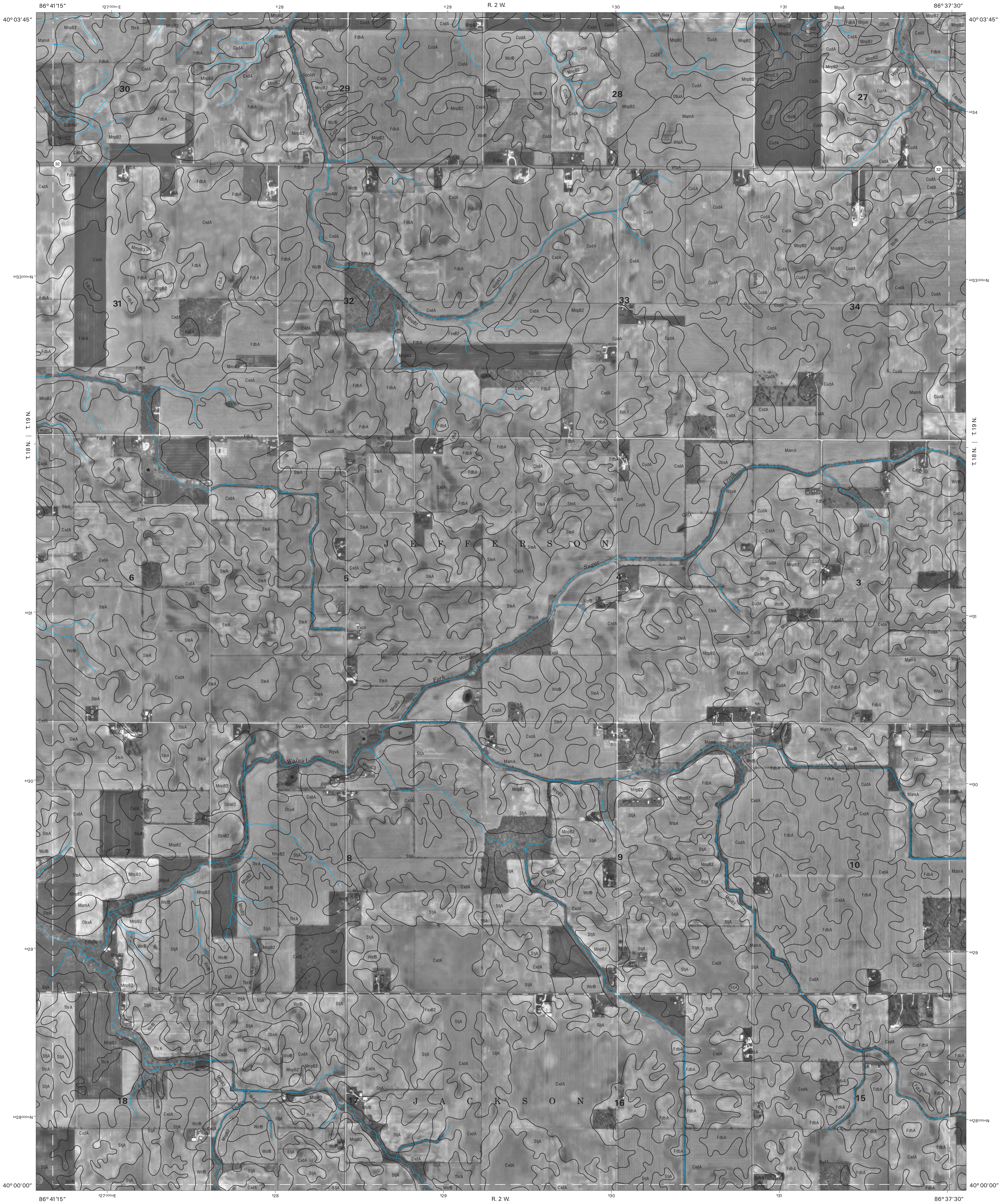
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
SHANNONDALE SE QUADRANGLE
SHEET NUMBER 20 OF 45



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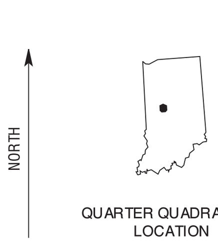
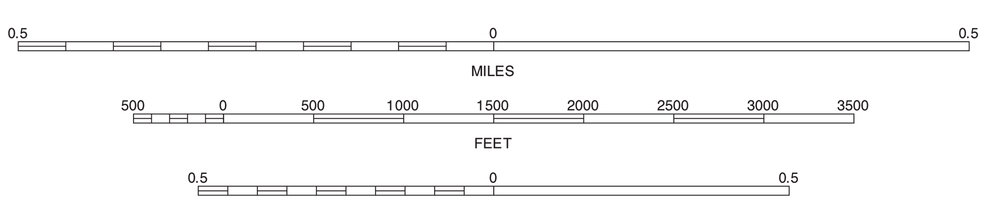
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 SHANNONDALE NW (SHEET 10)
2 SHANNONDALE NE (SHEET 11)
3 HAZELRIGG NW (SHEET 12)
4 SHANNONDALE SW (SHEET 19)
5 HAZELRIGG SW (SHEET 21)
6 NEW ROSS NW (SHEET 28)
7 NEW ROSS NE (SHEET 29)
8 LIZTON NW (SHEET 30)

INDEX TO ADJOINING 3.75 MAPS

SHANNONDALE SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 45

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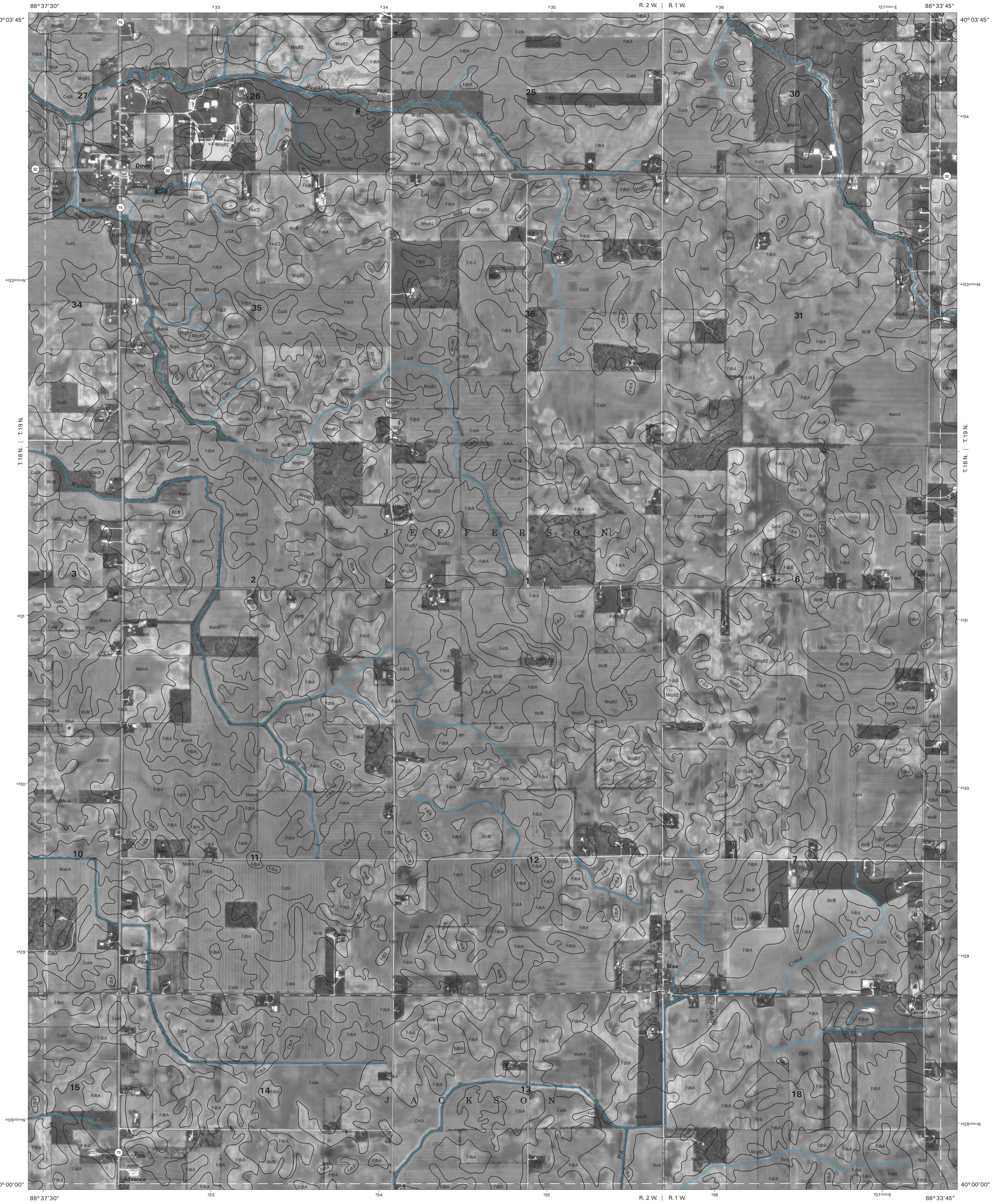
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
HAZELRIGG SW QUADRANGLE
SHEET NUMBER 21 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 SHANNONDALE NE (SHEET 11)
2 HAZELRIGG NW (SHEET 12)
3 HAZELRIGG NE (SHEET 13)
4 SHANNONDALE SE (SHEET 20)
5 HAZELRIGG SE (SHEET 22)
6 NEW ROSS NE (SHEET 29)
7 LIZTON NW (SHEET 30)
8 LIZTON NE (SHEET 31)

INDEX TO ADJOINING 3.75 MAPS

HAZELRIGG SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 21 OF 45

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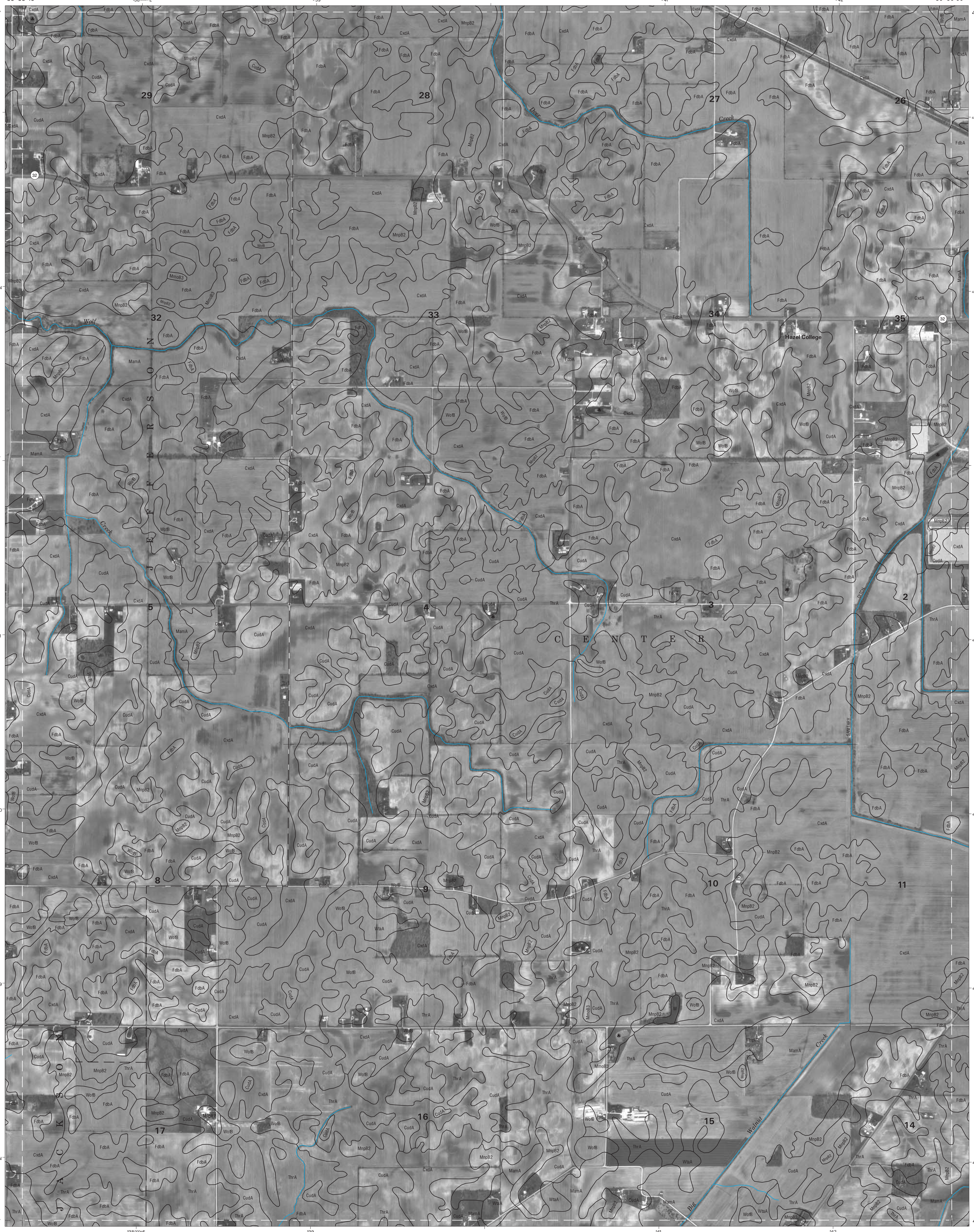
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
HAZELRIGG SE QUADRANGLE
SHEET NUMBER 22 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5
FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 HAZELRIGG NW (SHEET 12)
2 HAZELRIGG NE (SHEET 13)
3 LEBANON NW (SHEET 14)
4 HAZELRIGG SW (SHEET 21)
5 LEBANON SW (SHEET 23)
6 LIZTON NW (SHEET 30)
7 LIZTON NE (SHEET 31)
8 FAYETTE NW (SHEET 32)

INDEX TO ADJOINING 3.75 MAPS

HAZELRIGG SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 45

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LEBANON SW QUADRANGLE
SHEET NUMBER 23 OF 45

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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 HAZELRIGG NE (SHEET 13)
2 LEBANON NW (SHEET 14)
3 LEBANON NE (SHEET 15)
4 HAZELRIGG SE (SHEET 22)
5 LEBANON SE (SHEET 24)
6 LIZTON NE (SHEET 31)
7 FAYETTE NW (SHEET 32)
8 FAYETTE NE (SHEET 33)

INDEX TO ADJOINING 3.75 MAPS

LEBANON SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LEBANON SE QUADRANGLE
SHEET NUMBER 24 OF 45

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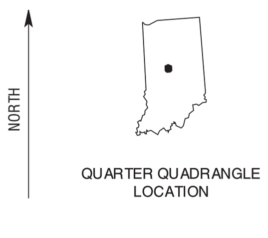
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 LEBANON NW (SHEET 14)
2 LEBANON NE (SHEET 15)
3 ROSSTON NW (SHEET 16)
4 LEBANON SW (SHEET 23)
5 ROSSTON SW (SHEET 25)
6 FAYETTE NW (SHEET 32)
7 FAYETTE NE (SHEET 33)
8 ZIONSVILLE NW (SHEET 34)

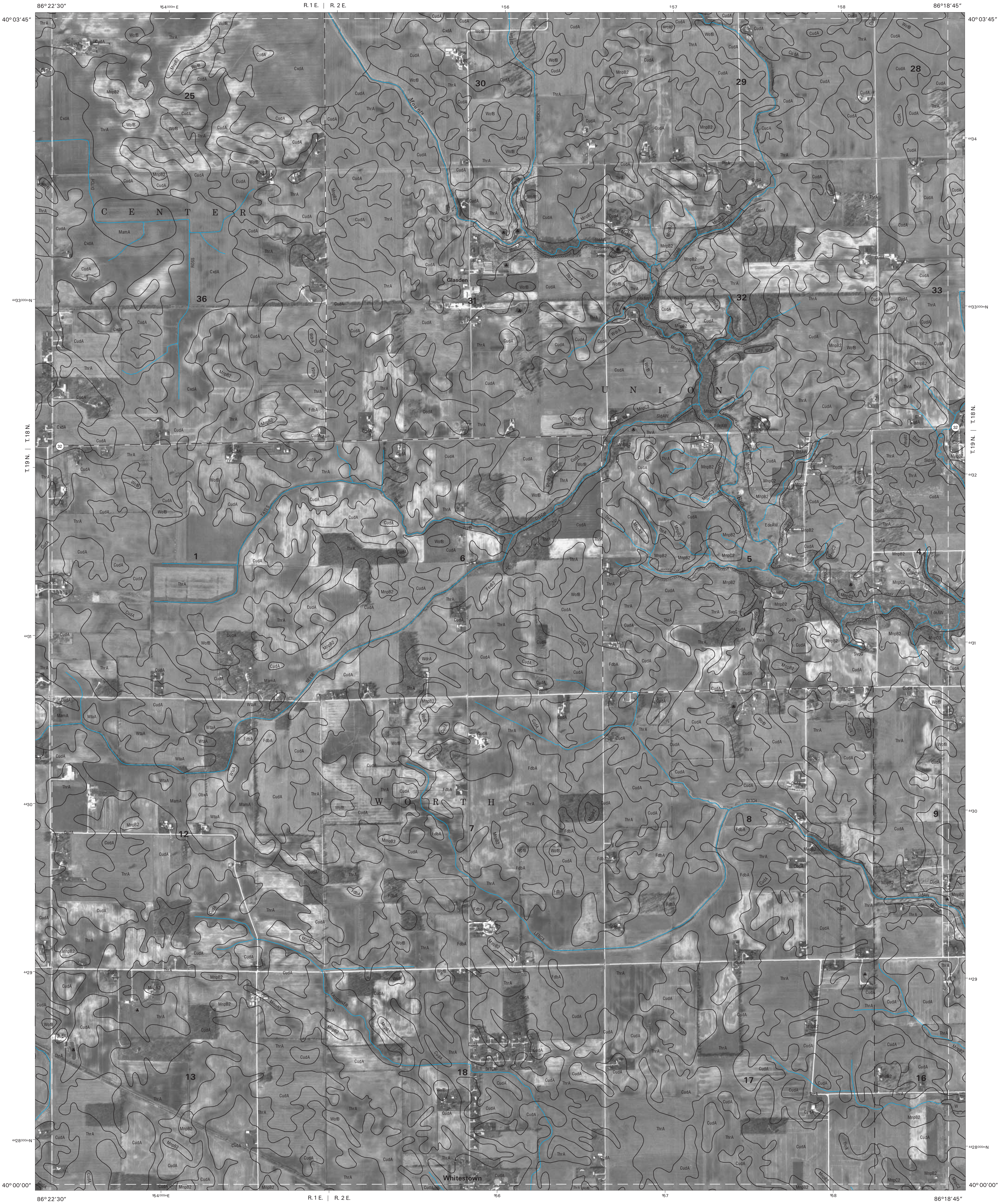
INDEX TO ADJOINING 3.75 MAPS

LEBANON SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

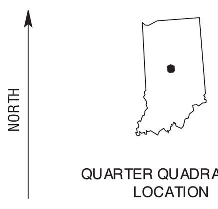
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
ROSSTON SW QUADRANGLE
SHEET NUMBER 25 OF 45



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 LEBANON NE (SHEET 15)
2 ROSSTON NW (SHEET 16)
3 ROSSTON NE (SHEET 17)
4 LEBANON SE (SHEET 24)
5 ROSSTON SE (SHEET 26)
6 FAYETTE NE (SHEET 33)
7 ZIONSVILLE NW (SHEET 34)
8 ZIONSVILLE NE (SHEET 35)

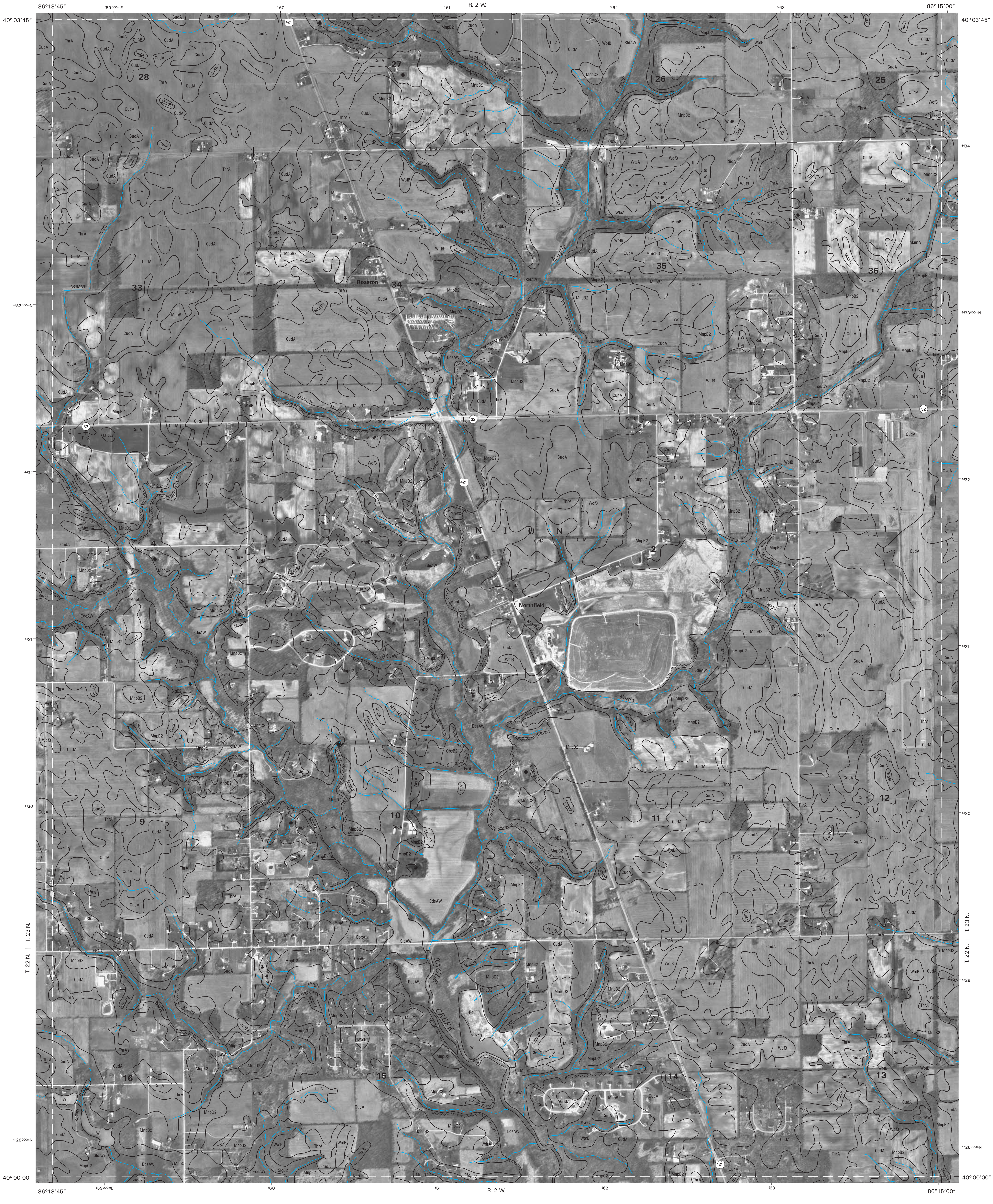
INDEX TO ADJOINING 3.75 MAPS

ROSSTON SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
ROSSTON SE QUADRANGLE
SHEET NUMBER 26 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES (0.5 – 0 – 0.5)

FEET (500 – 0 – 500 – 1000 – 1500 – 2000 – 2500 – 3000 – 3500)

KILOMETERS (0.5 – 0 – 0.5)

1	2	3
4		5
6	7	8

1 ROSSTON NW (SHEET 16)
2 ROSSTON NE (SHEET 17)
3 WESTFIELD NW (SHEET 18)
4 ROSSTON SW (SHEET 25)
5 WESTFIELD SW (SHEET 27)
6 ZIONSVILLE NW (SHEET 34)
7 ZIONSVILLE NE (SHEET 35)
8 CARMEL NW (SHEET 36)

INDEX TO ADJOINING 3.75 MAPS

ROSSTON SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

86°15′00″ R. 2 E. | R. 3 E. 565 566 567 568 569000m E 86°11′15″

40°03′45″

40°00′00″

86°15′00″ R. 2 E. | R. 3 E. 565 566 567 568 569000m E 86°11′15″

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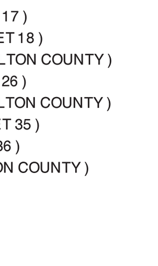
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 ROSSTON NE (SHEET 17)
2 WESTFIELD NW (SHEET 18)
3 WESTFIELD NE (HAMILTON COUNTY)
4 ROSSTON SE (SHEET 26)
5 WESTFIELD SE (HAMILTON COUNTY)
6 ZIONSVILLE NE (SHEET 35)
7 CARMEL NW (SHEET 36)
8 CARMEL NE (HAMILTON COUNTY)

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WESTFIELD SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 27 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
NEW ROSS NW QUADRANGLE
SHEET NUMBER 28 OF 45

86° 45′00″ | R. 3 W. | R. 2 W. 86° 41′15″

40° 00′00″

39° 56′15″

86° 45′00″ | R. 3 W. | R. 2 W. 86° 41′15″

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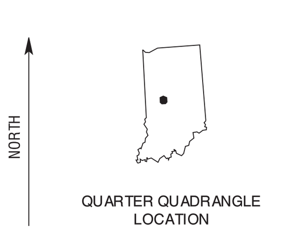
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 DARLINGTON SE (MONTGOMERY COUNTY)
2 SHANNONDALE SW (SHEET 19)
3 SHANNONDALE SE (SHEET 20)
4 LADOGA NE (MONTGOMERY COUNTY)
5 NEW ROSS NE (SHEET 29)
6 LADOGA SE (MONTGOMERY COUNTY)
7 NEW ROSS SW (SHEET 37)
8 NEW ROSS SE (SHEET 38)

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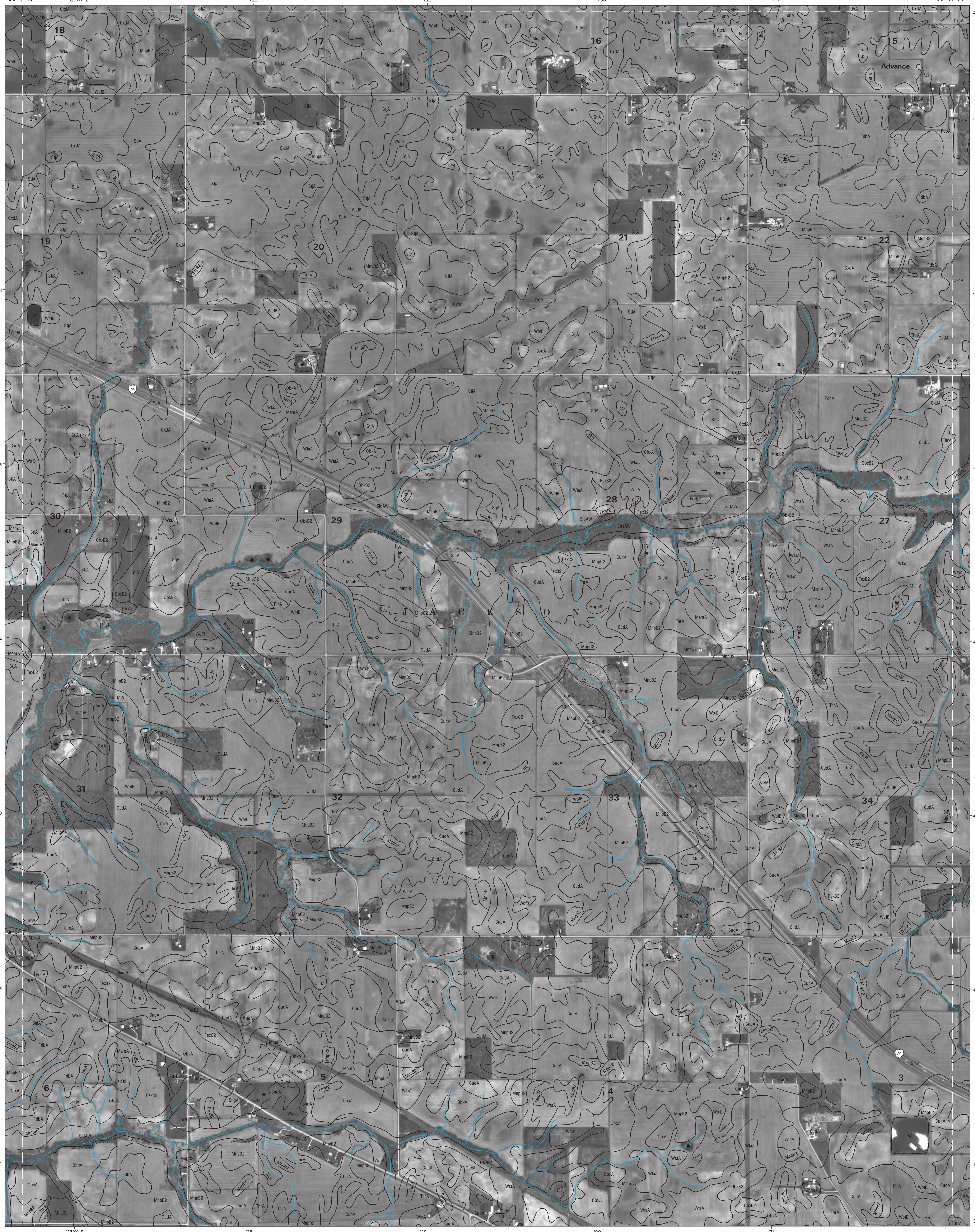
NEW ROSS NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 28 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
NEW ROSS NE QUADRANGLE
SHEET NUMBER 29 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

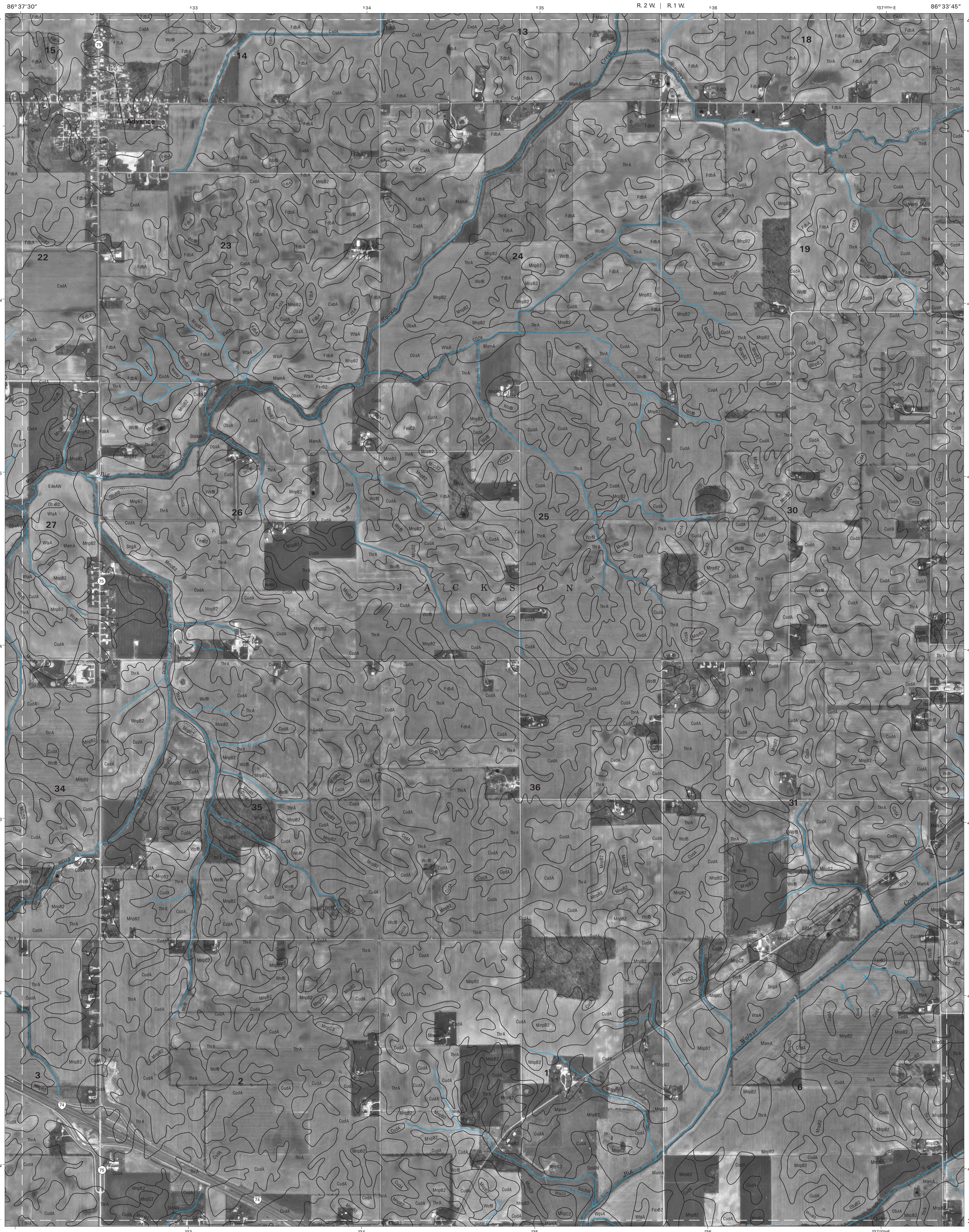
1 SHANNONDALE SW (SHEET 19)
2 SHANNONDALE SE (SHEET 20)
3 HAZELRIGG SW (SHEET 21)
4 NEW ROSS NW (SHEET 28)
5 LIZTON NW (SHEET 30)
6 NEW ROSS SW (SHEET 37)
7 NEW ROSS SE (SHEET 38)
8 LIZTON SW (SHEET 39)

NEW ROSS NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LIZTON NW QUADRANGLE
SHEET NUMBER 30 OF 45



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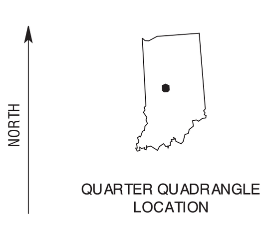
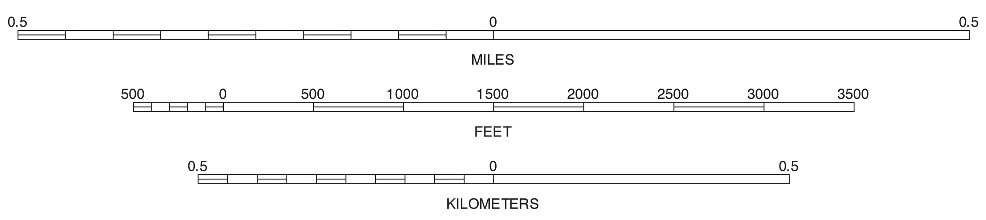


SCALE 1:12000



1	2	3
4		5
6	7	8

1 SHANNONDALE SE (SHEET 20)
2 HAZELRIGG SW (SHEET 21)
3 HAZELRIGG SE (SHEET 22)
4 NEW ROSS NE (SHEET 29)
5 LIZTON NE (SHEET 31)
6 NEW ROSS SE (SHEET 38)
7 LIZTON SW (SHEET 39)
8 LIZTON SE (SHEET 40)

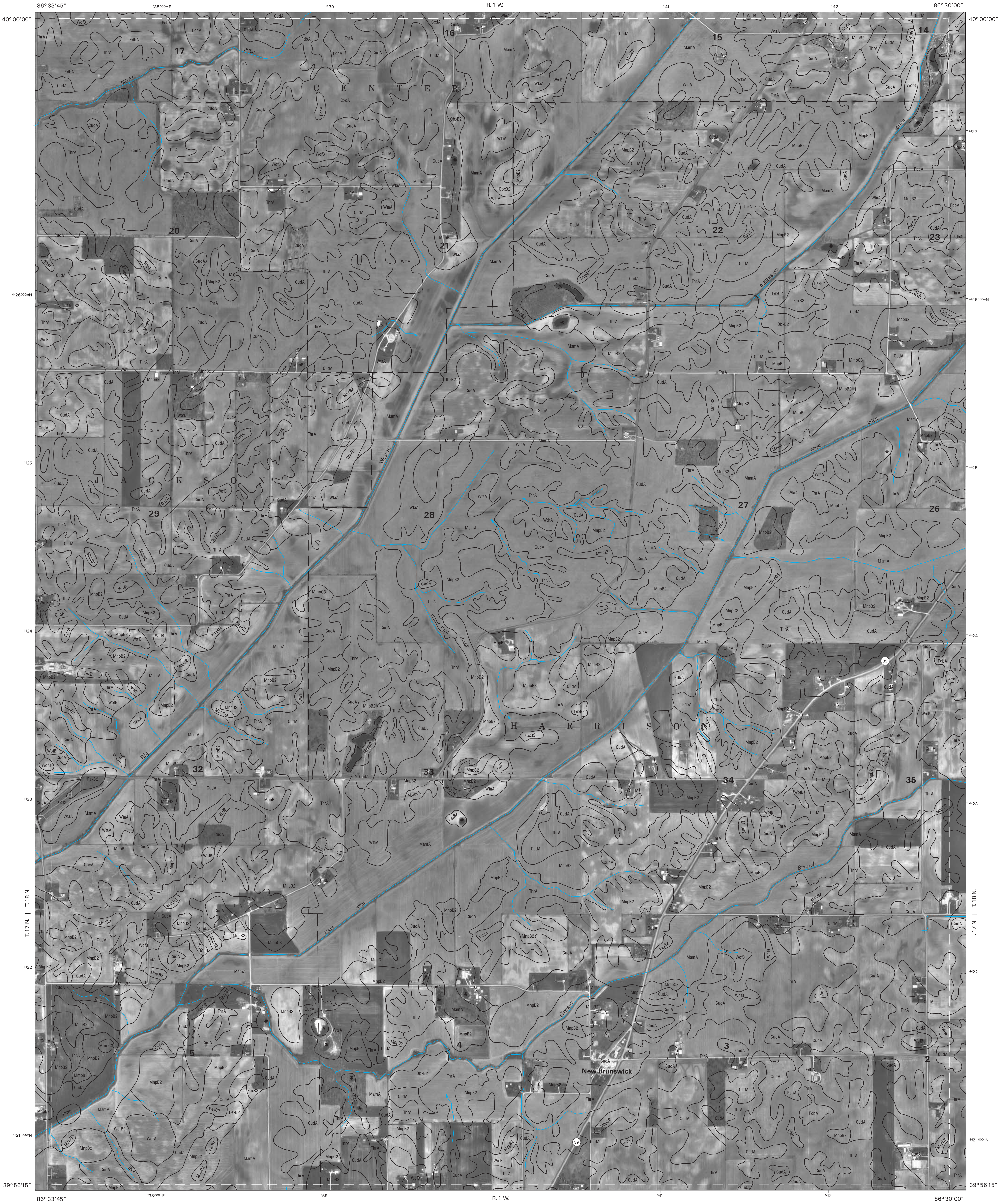
INDEX TO ADJOINING 3.75 MAPS

LIZTON NW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LIZTON NE QUADRANGLE
SHEET NUMBER 31 OF 45



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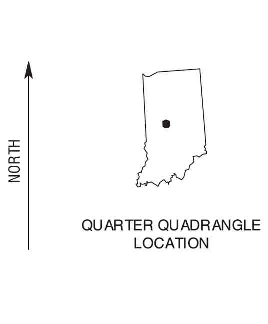
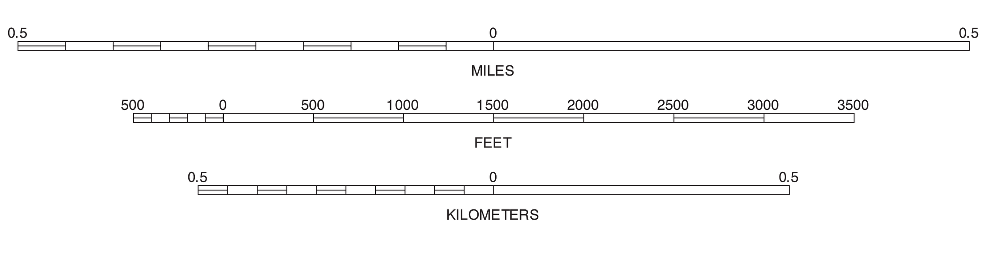
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 HAZELRIGG SW (SHEET 21)
2 HAZELRIGG SE (SHEET 22)
3 LEBANON SW (SHEET 23)
4 LIZTON NW (SHEET 30)
5 FAYETTE NW (SHEET 32)
6 LIZTON SW (SHEET 39)
7 LIZTON SE (SHEET 40)
8 FAYETTE SW (SHEET 41)

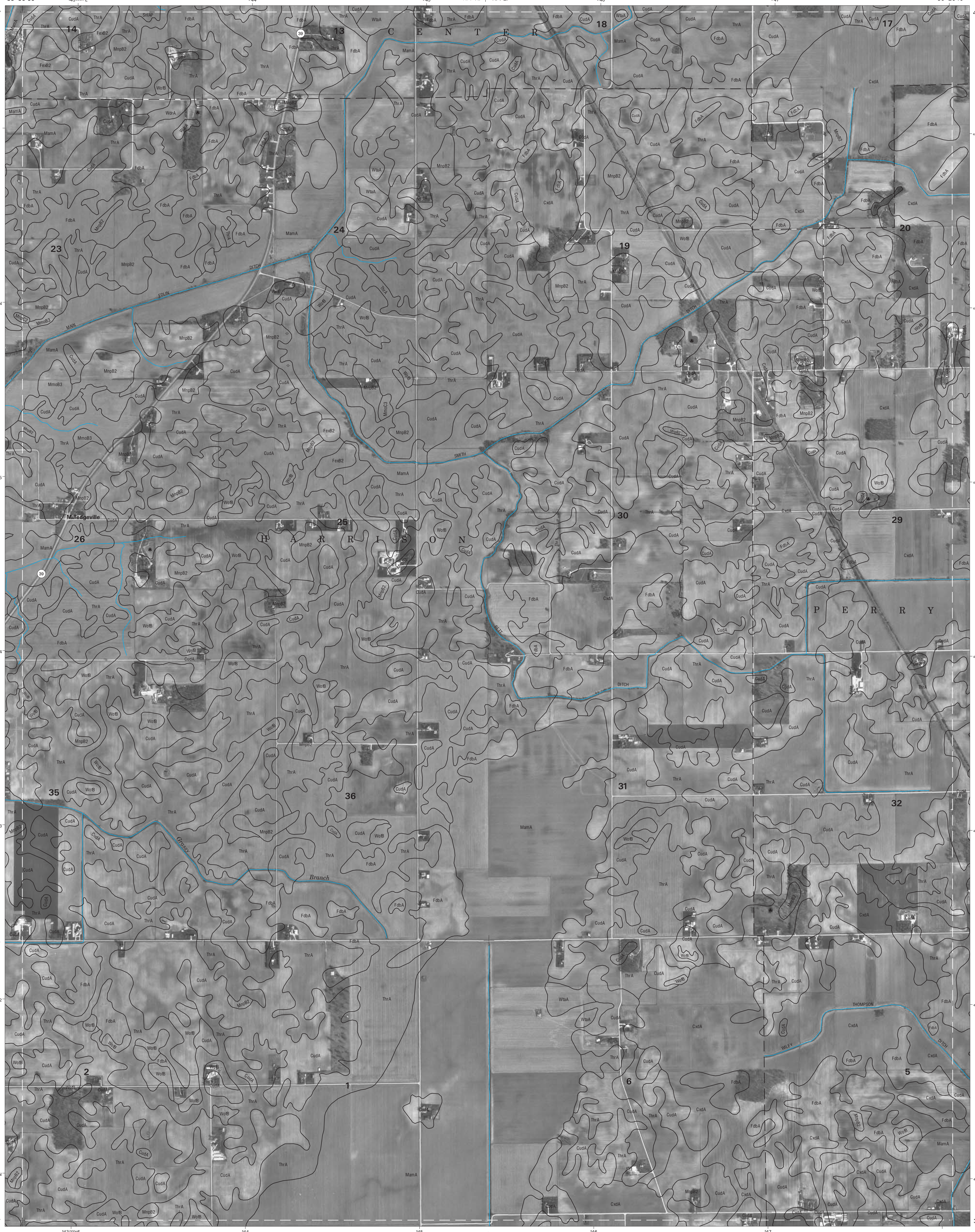
INDEX TO ADJOINING 3.75 MAPS

LIZTON NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
FAYETTE NW QUADRANGLE
SHEET NUMBER 32 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 HAZELRIGG SE (SHEET 22)
2 LEBANON SW (SHEET 23)
3 LEBANON SE (SHEET 24)
4 LIZTON NE (SHEET 31)
5 FAYETTE NE (SHEET 33)
6 LIZTON SE (SHEET 40)
7 FAYETTE SW (SHEET 41)
8 FAYETTE SE (SHEET 42)

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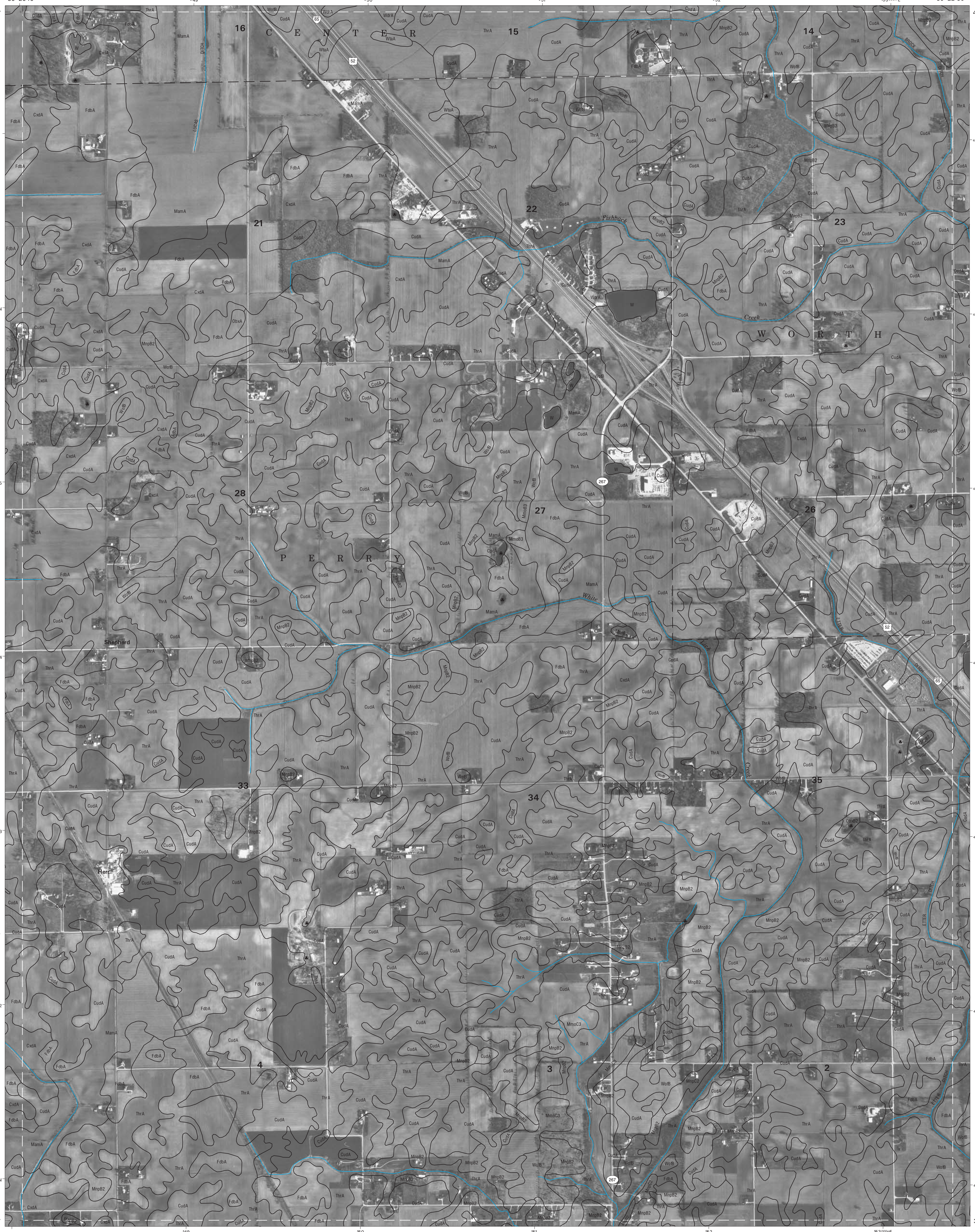
FAYETTE NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 32 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
FAYETTE NE QUADRANGLE
SHEET NUMBER 33 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 LEBANON SW (SHEET 23)
2 LEBANON SE (SHEET 24)
3 ROSSTON SW (SHEET 25)
4 FAYETTE NW (SHEET 32)
5 ZIONSVILLE NW (SHEET 34)
6 FAYETTE SW (SHEET 41)
7 FAYETTE SE (SHEET 42)
8 ZIONSVILLE SW (SHEET 43)

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FAYETTE NE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 33 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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BOONE COUNTY, INDIANA
ZIONSVILLE NW QUADRANGLE
SHEET NUMBER 34 OF 45

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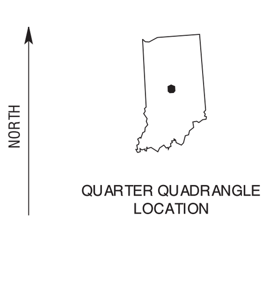
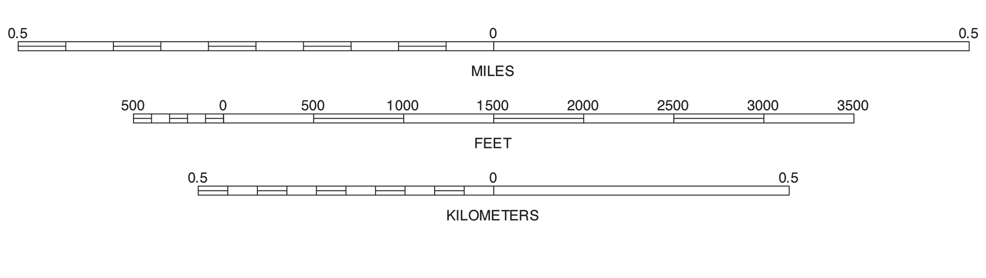
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 LEBANON SE (SHEET 24)
2 ROSSTON SW (SHEET 25)
3 ROSSTON SE (SHEET 26)
4 FAYETTE NE (SHEET 33)
5 ZIONSVILLE NE (SHEET 35)
6 FAYETTE SE (SHEET 42)
7 ZIONSVILLE SW (SHEET 43)
8 ZIONSVILLE SE (SHEET 44)

INDEX TO ADJOINING 3.75 MAPS

ZIONSVILLE NW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 34 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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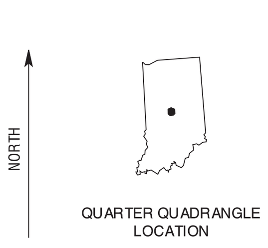
BOONE COUNTY, INDIANA
ZIONSVILLE NE QUADRANGLE
SHEET NUMBER 35 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 ROSSTON SW (SHEET 25)
2 ROSSTON SE (SHEET 26)
3 WESTFIELD SW (SHEET 27)
4 ZIONSVILLE NW (SHEET 34)
5 CARMEL NW (SHEET 36)
6 ZIONSVILLE SW (SHEET 43)
7 ZIONSVILLE SE (SHEET 44)
8 CARMEL SW (SHEET 45)

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ZIONSVILLE NE, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 35 OF 45

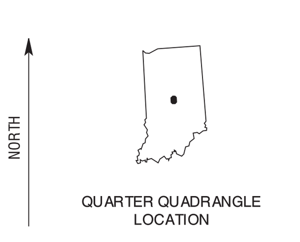
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
CARMEL NW QUADRANGLE
SHEET NUMBER 36 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 ROSSTON SE (SHEET 26)
2 WESTFIELD SW (SHEET 27)
3 WESTFIELD SE (HAMILTON COUNTY)
4 ZIONSVILLE NE (SHEET 35)
5 CARMEL NE (HAMILTON COUNTY)
6 ZIONSVILLE SE (SHEET 44)
7 CARMEL SW (SHEET 45)
8 CARMEL SE (MARION COUNTY)

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CARMEL NW, INDIANA
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
NEW ROSS SW QUADRANGLE
SHEET NUMBER 37 OF 45

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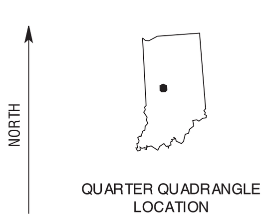
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



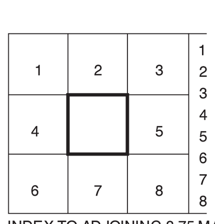
QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS



1 LADOGA NE (MONTGOMERY COUNTY)
2 NEW ROSS NW (SHEET 28)
3 NEW ROSS NE (SHEET 29)
4 LADOGA SE (MONTGOMERY COUNTY)
5 NEW ROSS SE (SHEET 38)
6 ROACHDALE NE (PUTNAM COUNTY)
7 NORTH SALEM NW (PUTNAM COUNTY)
8 NORTH SALEM NE (HENDRICKS COUNTY)

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NEW ROSS SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 37 OF 45

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
NEW ROSS SE QUADRANGLE
SHEET NUMBER 38 OF 45

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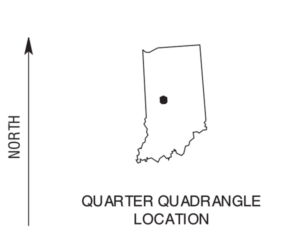

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 NEW ROSS NW (SHEET 28)
2 NEW ROSS NE (SHEET 29)
3 LIZTON NW (SHEET 30)
4 NEW ROSS SW (SHEET 37)
5 LIZTON SW (SHEET 39)
6 NORTH SALEM NW (PUTNAM COUNTY)
7 NORTH SALEM NE (HENDRICKS COUNTY)
8 DANVILLE NW (HENDRICKS COUNTY)

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NEW ROSS SE, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 38 OF 45

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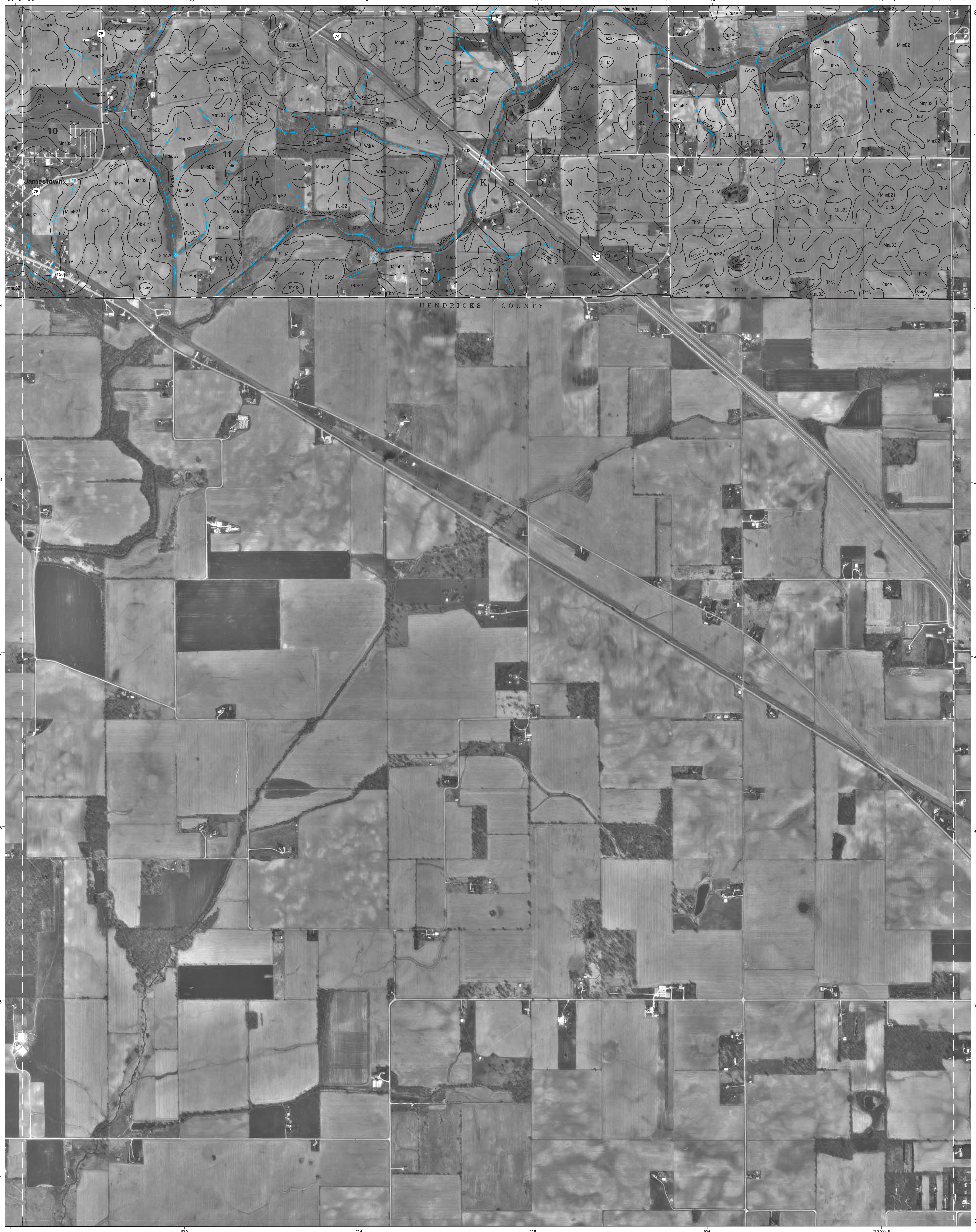
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
LIZTON SW QUADRANGLE
SHEET NUMBER 39 OF 45



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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 NEW ROSS NE (SHEET 29)
2 LIZTON NW (SHEET 30)
3 LIZTON NE (SHEET 31)
4 NEW ROSS SE (SHEET 38)
5 LIZTON SE (SHEET 40)
6 NORTH SALEM NE (HENDRICKS COUNTY)
7 DANVILLE NW (HENDRICKS COUNTY)
8 DANVILLE NE (HENDRICKS COUNTY)

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LIZTON SW, INDIANA
3.75 MINUTE SERIES
SHEET NUMBER 39 OF 45

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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BOONE COUNTY, INDIANA
LIZTON SE QUADRANGLE
SHEET NUMBER 40 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 LIZTON NW (SHEET 30)
2 LIZTON NE (SHEET 31)
3 FAYETTE NW (SHEET 32)
4 LIZTON SW (SHEET 39)
5 FAYETTE SW (SHEET 41)
6 DANVILLE NW (HENDRICKS COUNTY)
7 DANVILLE NE (HENDRICKS COUNTY)
8 BROWNSBURG NW (HENDRICKS COUNTY)

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LIZTON SE, INDIANA
3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
FAYETTE SW QUADRANGLE
SHEET NUMBER 41 OF 45

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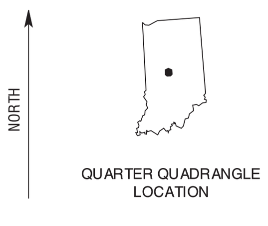
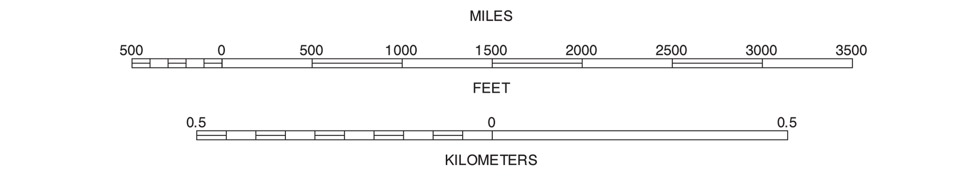
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 LIZTON NE (SHEET 31)
2 FAYETTE NW (SHEET 32)
3 FAYETTE NE (SHEET 33)
4 LIZTON SE (SHEET 40)
5 FAYETTE SE (SHEET 42)
6 DANVILLE NE (HENDRICKS COUNTY)
7 BROWNSBURG NW (HENDRICKS COUNTY)
8 BROWNSBURG NE (HENDRICKS COUNTY)

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FAYETTE SW, INDIANA
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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
FAYETTE SE QUADRANGLE
SHEET NUMBER 42 OF 45

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S.Department of Interior, Geological Survey, from 1998 and 1999 aerial photography. Culture information public land survey system (PLSS) information were acquired from the U.S.Department of Interior, U.S.Geological Survey. The culture layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

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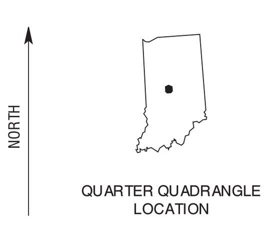
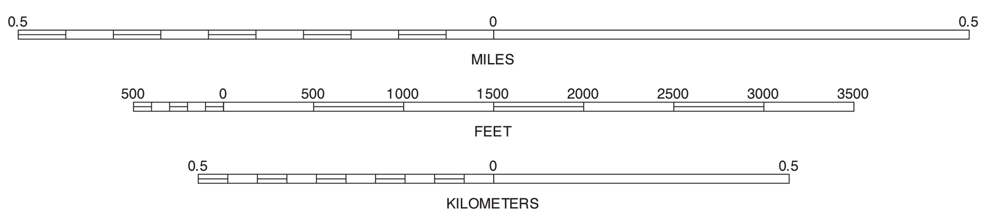


QUARTER QUADRANGLE
LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 FAYETTE NW (SHEET 32)
2 FAYETTE NE (SHEET 33)
3 ZIONSVILLE NW (SHEET 34)
4 FAYETTE SW (SHEET 41)
5 ZIONSVILLE SW (SHEET 43)
6 BROWNSBURG NW (HENDRICKS COUNTY)
7 BROWNSBURG NE (HENDRICKS COUNTY)
8 CLERMONT NW (HENDRICKS COUNTY)

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FAYETTE SE, INDIANA
3.75 MINUTE SERIES
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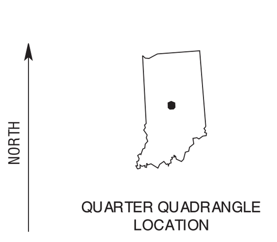
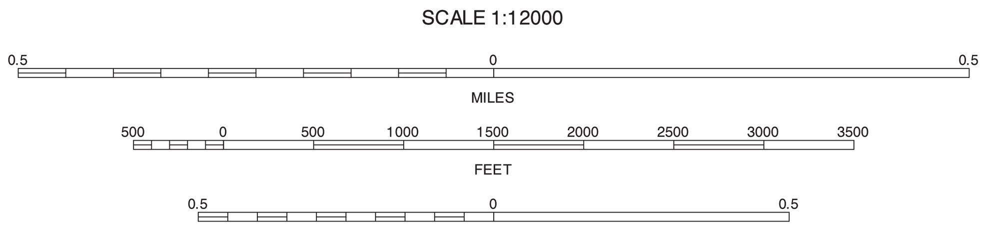


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 FAYETTE NE (SHEET 33)
2 ZIONSVILLE NW (SHEET 34)
3 ZIONSVILLE NE (SHEET 35)
4 FAYETTE SE (SHEET 42)
5 ZIONSVILLE SE (SHEET 44)
6 BROWNSBURG NE (HENDRICKS COUNTY)
7 CLERMONT NW (HENDRICKS COUNTY)
8 CLERMONT NE (MARION COUNTY)

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ZIONSVILLE SW, INDIANA

3.75 MINUTE SERIES
SHEET NUMBER 43 OF 45

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North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 ZIONSVILLE NW (SHEET 34)
2 ZIONSVILLE NE (SHEET 35)
3 CARMEL NW (SHEET 36)
4 ZIONSVILLE SW (SHEET 43)
5 CARMEL SW (SHEET 45)
6 CLERMONT NW (HENDRICKS COUNTY)
7 CLERMONT NE (MARION COUNTY)
8 INDIANAPOLIS WEST NW (MARION COUNTY)

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ZIONSVILLE SE, INDIANA

3.75 MINUTE SERIES
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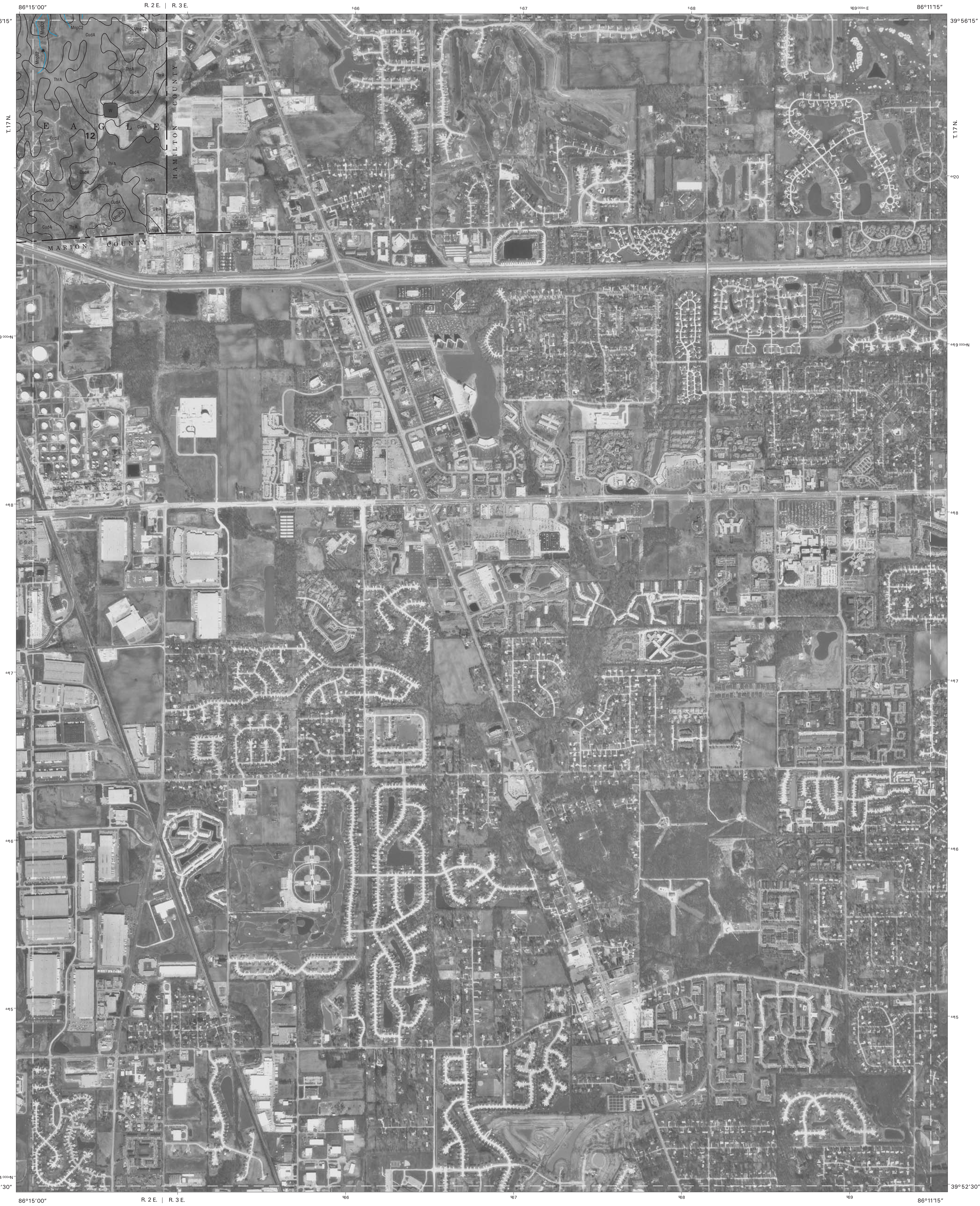
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

BOONE COUNTY, INDIANA
CARMEL SW QUADRANGLE
SHEET NUMBER 45 OF 45



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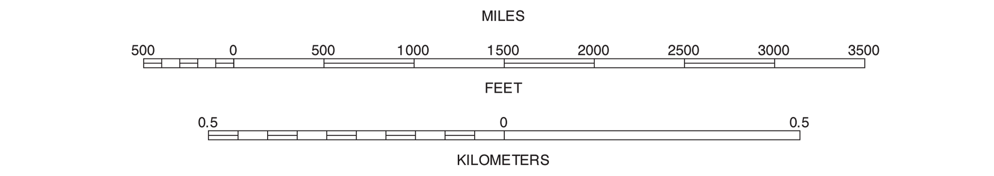
North American Datum of 1983 (NAD83). GRS - 80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 ZIONSVILLE NE (SHEET 35)
2 CARMEL NW (SHEET 36)
3 CARMEL NE (HAMILTON COUNTY)
4 ZIONSVILLE SE (SHEET 44)
5 CARMEL SE (MARION COUNTY)
6 CLERMONT NE (MARION COUNTY)
7 INDIANAPOLIS WEST NW (MARION COUNTY)
8 INDIANAPOLIS WEST NE (MARION COUNTY)

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CARMEL SW, INDIANA
3.75 MINUTE SERIES
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